Artemis

Service Manual

HTC Proprietary

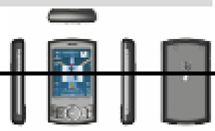
Confidential Treatment Requested

Rev. AX02

Oct,17,2006

HTC Corp.

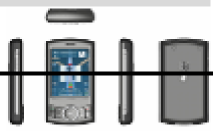
Engineering Mobility



Revision Control Table

Rev	Date	Contents	Dept	Revised	App Dept	Stage
AX01	2006/9/15	Fist Draft	PSE	Henry DAL		PVT
AX02	2006/10/17	Add Disassembly process	PSE	Edwin Chen		MV
AX03	2007/1/10	• Modify p.25 : Del (Stick the **Copper Foil** on the **Camera Module**.)	PSE	Edwin Chen		MP

Table of Contents



1. Introduction

- This manual provides the technical information to support the service activities of the pocket PC phone - Artemis.
- This document contains highly confidential information, so any or all of this document should not be revealed to any third party.

2. Product Features

Platform

- Slim GPS PDA Phone.
- Microsoft Windows Mobile 5 Pocket PC Phone Edition.

Processor/Chipset

- TI OMAP 850, 200 MHz.

Memory

- ROM: 128MB.
- RAM: 64MB.

LCD Module

- 2.8" 240 x 320 color TFT LCD.
- LED backlight.
- Sensitive Touch Screen.

GSM/GPRS/ EDGE Functional Block

- Internal antenna.
- GSM Quad-band: 850/900/1800/1900 MHz.
- EDGE/GPRS: class B, Multi-slot standard class 10.

GPS

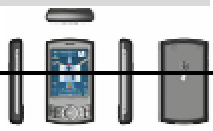
- Internal GPS antenna.
- 20 parallel channel GPS receiver.

FM Radio

- Tuning range: 87.5 MHz ~ 108.5 MHz.

Wireless LAN

- WI-FI 802.11b/g.



Device-to-Device Connectivity

- Bluetooth 2.0.

Digital Camera

- 2 mega-pixel CMOS image sensor.

Power

- Battery.
- Removable and chargeable battery, 1,250mAh.
- AC adaptor.
- AC input: 100 ~ 240V AC, 50/60 Hz.

Keyboard/Button/Switch

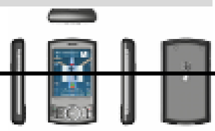
- Power Button.
- Volume up & down Button.
- Voice dialer /Voice recorder Button.
- Camera captures Button.
- 2 Soft-key Buttons.
- Send/Hands-free Button.
- End Button.
- Start Button.
- OK Button.
- GPS Button.
- Portal Button.
- 8-way track ball w/ action.
- Track wheel.
- Reset Switch.

Notification

- One bi-color LED for GSM network status, notification, and charging status.
- One Bi-color LEDs (Blue & Green) and One Orange-colored LED on in the second lens for WI-FI (Green), Bluetooth (Blue), and GPS (Amble) status.
- Notification by LED, sound, message, and vibration.

Audio

- Microphone.
- Receiver.
- Loud speaker for Hands-free and GPS voice instruction support.



Interface

- 3V SIM Card slot.
- Micro-SD Card slot.
- HTC Ext-USB (11-pin, mini-USB & audio jack in one).
- External Antenna Connector.
- External GPS Antenna Connector.

Stylus

- Lock type mechanism.

Hanger

Accessories

- Standard.
- AC adapter.
- USB Sync. Cable.
- Stereo wired headset with microphone and FM radio antenna support.
- Stylus.
- User manual, quick start guide & software CD.
- Option.
- Pouch.
- Mono Bluetooth headset.
- Stereo Bluetooth headset.
- Car adapter.
- Car holder.

Microsoft Windows Mobile 5.0 Pocket-PC Phone Applications

- Pocket Outlook.
- Calendar, Contacts, Messaging, Tasks, & Voice Notes.
- Direct-Push Mail.
- Internet Explorer Mobile.
- Office Mobile.
- Word, Excel, & PowerPoint Mobile.
- Windows Media Player 10 Mobile.
- Pictures & Videos.
- ActiveSync Client.
- Pocket MSN.

- Modem Link.
- Device Management.
- OTA Provisioning.
- Terminal Service Client.
- Calculator.
- Games.

Value Added Applications

- Camera captures utility.
- Camcorder utility.
- H.263, MPEG4.
- WMP 10 DirectShow plug in to support playing more audio/video format.
- Audio Codec.
- MP3/ WMA / AMR/ AAC/ AAC+ (optional).
- Video Codec.
- MPEG4 / H.263 / Motion JPG.
- MMS Client.
- PDF Viewer.
- ZIP.
- SIM Manager.
- Comm. Manager.
- Voice Dial.
- Smart Dialing.
- OMA DRM v1.0.
- STK 99.
- Backup Tool.
- FM Radio Application.
- GPS navigation software [optional].

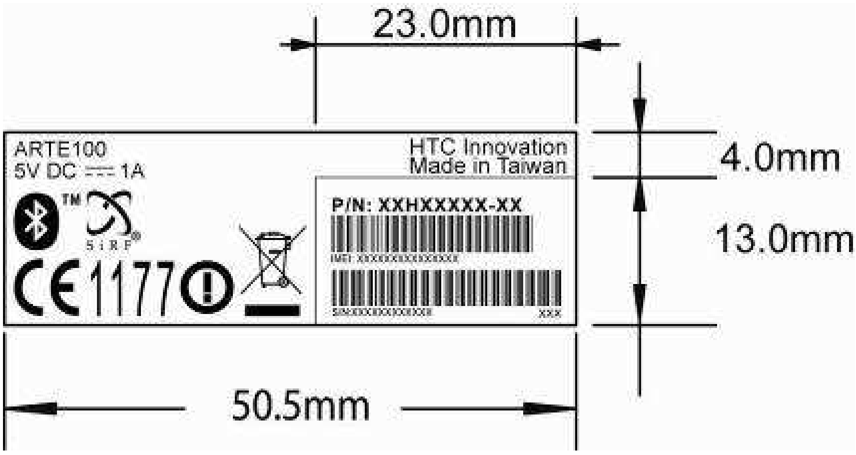
3. Labeling Plan

3.1 Labels for device

3.1.1 Agency label-ARTE100 w/ WiFi

HTC P/N: 77H00400-00M

Size: 50.5 X 17.0 mm

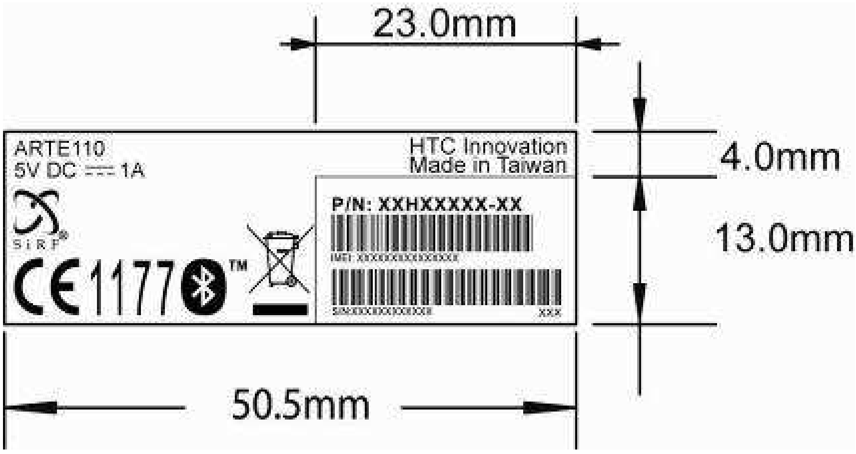


HTC P/N	Countries supported

3.1.2 Agency label-ARTE110 w/o WiFi

HTC P/N: 77H00400-01M

Size: 50.5 X 17.0 mm



HTC P/N	Countries supported

3.2 main label locations Explanation

Tamper evident label

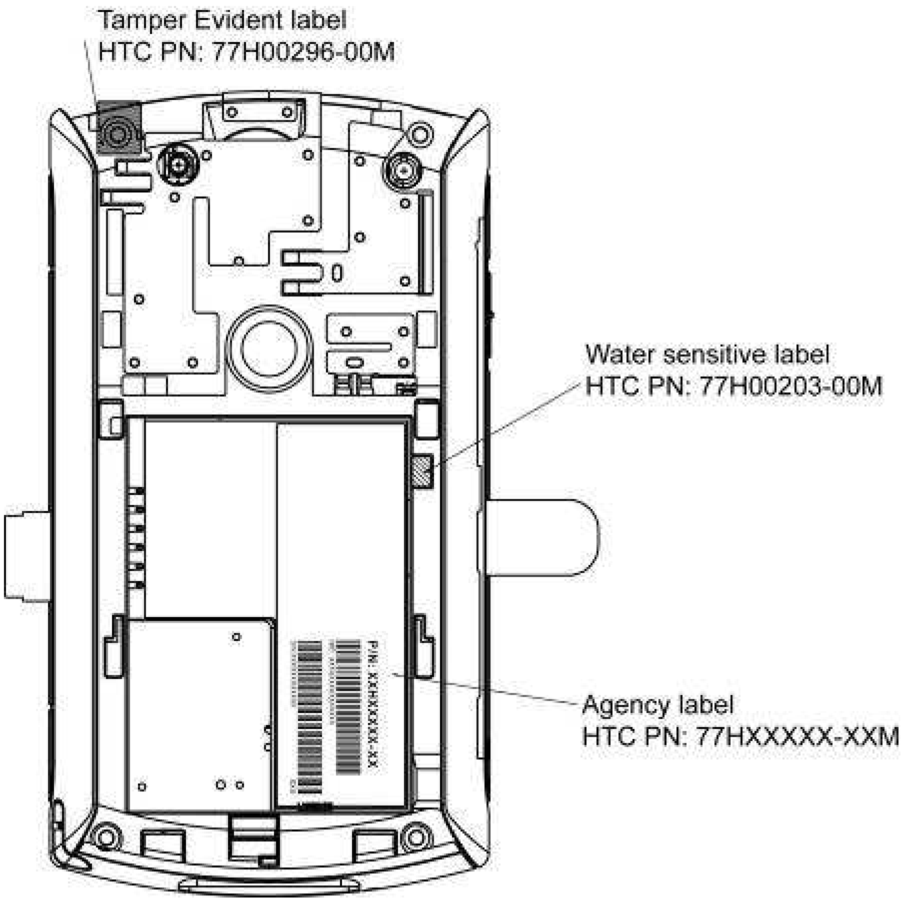
HTC PN: 77H00296-00M

Size: 5.68X6.9mm

Water sensitive label

HTC PN: 77H00203-00M

Size: 2.5X4mm



3.3 Battery label

3.3.1 Battery label-Celxpert (WWE, CHT, Product of Taiwan)

HTC P/N: 35H00062-04M



3.3.2 Battery label-Celxpert (WWE, CHT, product of China)

HTC P/N: 35H00062-06M



3.3.3 Battery label-Celxpert (CHS, product of China)

HTC P/N: 35H00062-07M



3.4 Battery label-Sanyo

HTC P/N: 35H00064-03M



3.5 Battery label-Samsung

HTC P/N: 35H00075-01M



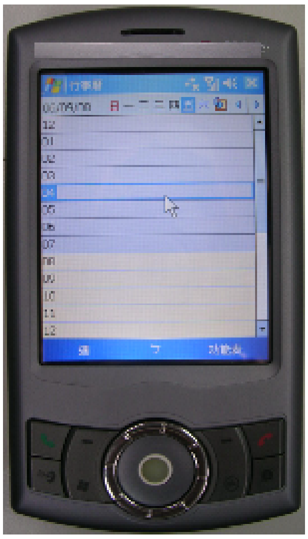
4. Inspection Criteria

4.1 Definition of classes

4.1.1 Class A area => the front side of main unit involves all buttons, Wheel, Jog ball, and LED lens except LCD.

4.1.2 Class C area => 4 sides and back views of main unit include side key *3, volume key, Camera and stylus.

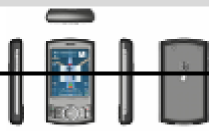
4.1.3 Class D area => Socket of battery, inner side of battery cover, Micro SD/SIM Connector and battery connector.

		
Area A	**Area C**	**Area D**

4.2 Description

4.2.1 General inspective regulations and according SPEC refer to IS-3047 Generic Cosmetic Inspection Criteria.

4.2.2 In the event of any inconsistencies between this document of IS-3455 and the Relationship agreement, the parties agree that this document of IS-3455 shall prevail.



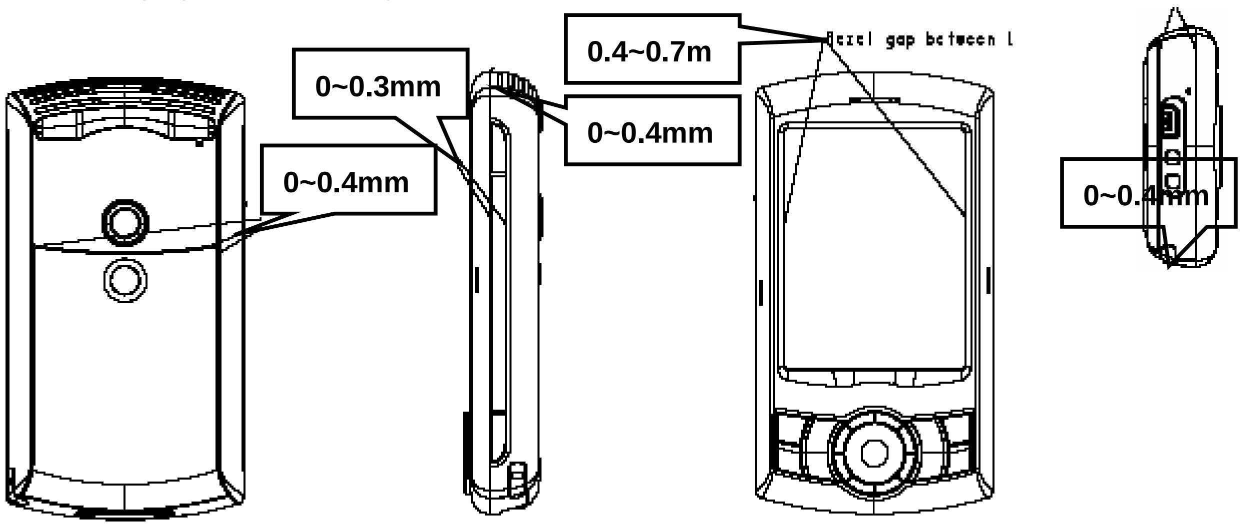
4.3 Display inspection

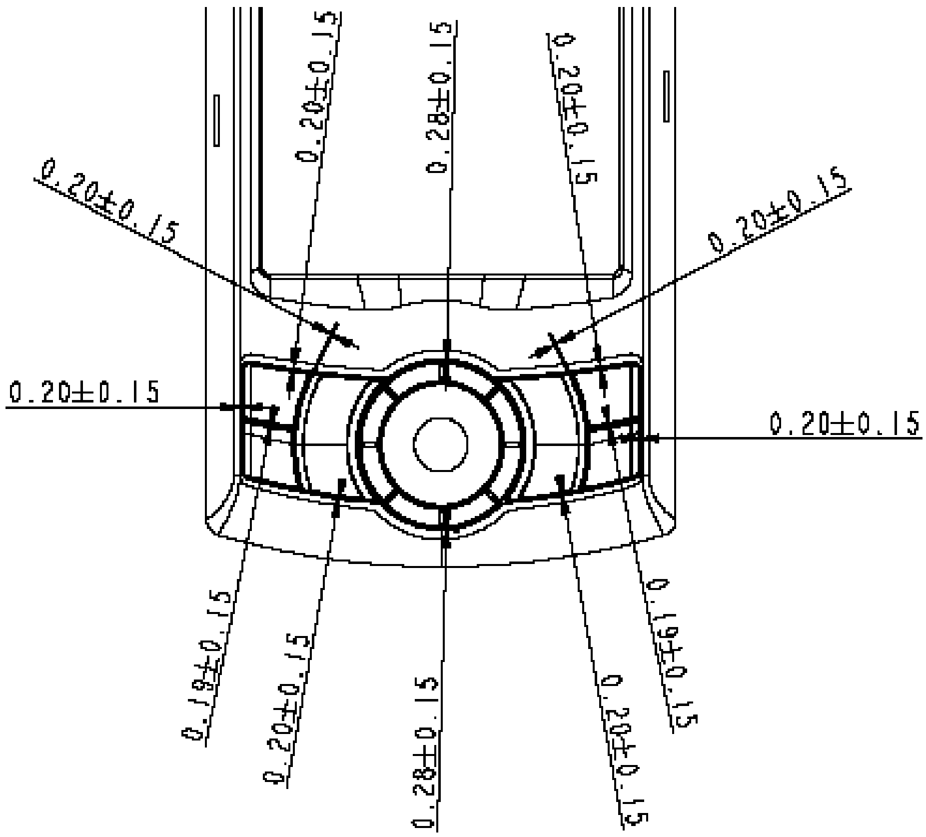
Inspection Defects			Accept Level	Level
Electrical Characteristic Defects	Bright Dots	Single	Red+ Green+ Blue □ 3, S ≥ 5mm.	Minor
		2 adjacent	0	Minor
		3 or more adjacent	0	Minor
	Dark Dots	Single	Total Number □ 2, S ≥ 5mm.	Minor
		2 adjacent	0	Minor
	Dark or Bright lines		0	Minor
	All Allowable Dots Defects		Total Number □ 3, S ≥ 5mm.	Minor
	Shift and tilt of screen viewed area		The black edge around display area must be detected by front view.	Minor
Foreign Scratch, Objects or Lint on power off status	Scratch		0.03 < W □ 0.1 (mm) L □ 5 (mm), N □ 2 (mm)	Minor
	Lint (linear foreign objects)		0.03 < W □ 0.1 (mm) 0.3 < L □ 3.0 (mm) N □ 5	Minor
	Spots		0.1 < D □ 0.3 (mm), N □ 4	Minor
	Fish eye on film		0.1 < D □ 0.4 (mm), N □ 4	Minor
	Breakage on film surface		Not acceptable	Minor
	Total acceptable defect quantity □ 10			Minor

4.4 Main unit inspection

4.4.1 Gap & Step inspections

4.4.1.1 Gap spec. as following





4.4.1.2 Step

	Description	Accept Criteria
1.	Step between mating parts.	Step < 0.3 mm
2.	Others, refer to production release spec	Others, refer to production release spec

4.4.2 Cosmetic inspection

4.4.2.1 Broken, come off and curved edges are unacceptable. The serious folded mark is not allowed as photo attached, but allows two minor folded marks.

4.4.2.2 The inspective point of D area.

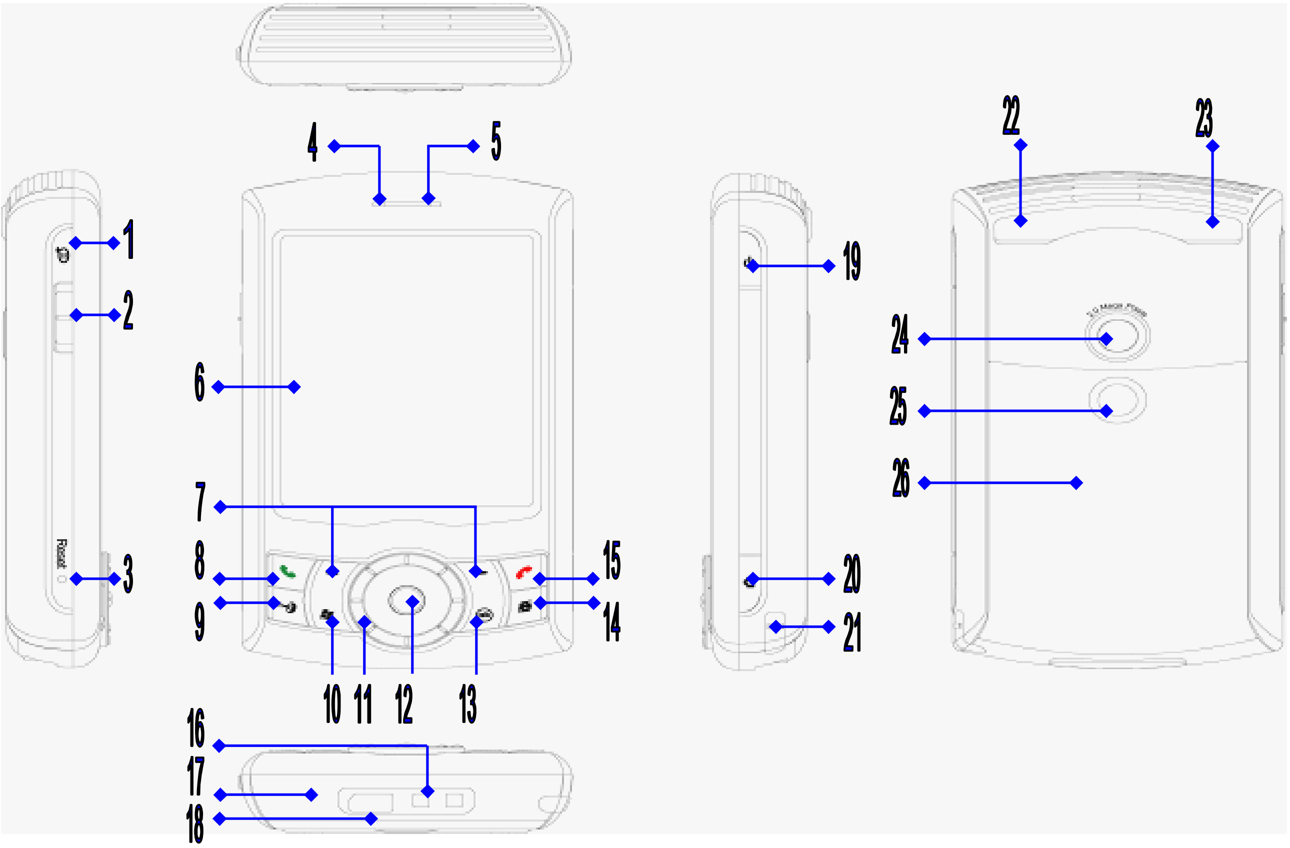
- Any marks generated by scratching, grinding or colliding are acceptable except base material exposed.
- Not allow battery connector pin and SIM/Micro SD Conn. Deform. The hook of battery cover also can't allow broken and deform

4.4.2.3 Others

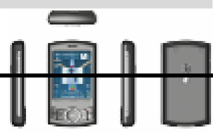
Scratch		
Description	Accept Criteria	
Class A	Exposure of substrate do not accept Scratch : L□4mm ,W□0.2mm ,N□2, S□10mm	MI
Class B	Exposure of substrate do not accept Scratch : L□4mm ,W□0.25mm ,N□3, S□10mm	MI
Class C	Label area don't care Exposure of substrate do not accept Scratch : L□10mm ,W□0.4mm ,N□5, S□5mm	MI
Contamination dot/Granule dot/Cave granule		
Description	Accept Criteria	
Class A	D□0.5mm ,N□2,S □15 mm (Ignored if D D□ 0.15mm)	MI
Class B	Total: D<0.6mm ,N□4,S □15 mm (Ignored if D D□ 0.25mm)	MI
Class C	D<0.9mm ,N□4,S □10 mm	MI
Burr		
Description	Accept Criteria	
Burr.	Don't accept hand scrape	MI
Imprint mark		
Description	Accept Criteria	
Class A	0.25□diameter□0.65mm ,N□3	MI
Class B	0.65mm<Diameter□1.00mm,N□3	MI
Bright mark		
Description	Accept Criteria	
Class A	L□2.5mm,W□0.25mm,N□3	MI
Class B	L□3.0mm,W□0.25mm,N□4	MI
Class C	L□3.0mm,W□0.3mm,N□5	MI
Lint		
Description	Accept Criteria	
Class A	L□3mm , W□0.2mm ,N□2, S □5 mm	MI
Class B	L□5mm , W□0.3mm ,N□3, S □5 mm	MI
Class C	L□10mm , W□0.3 mm ,N□3	MI

5. Product Overview

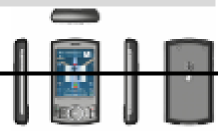
➢ Device



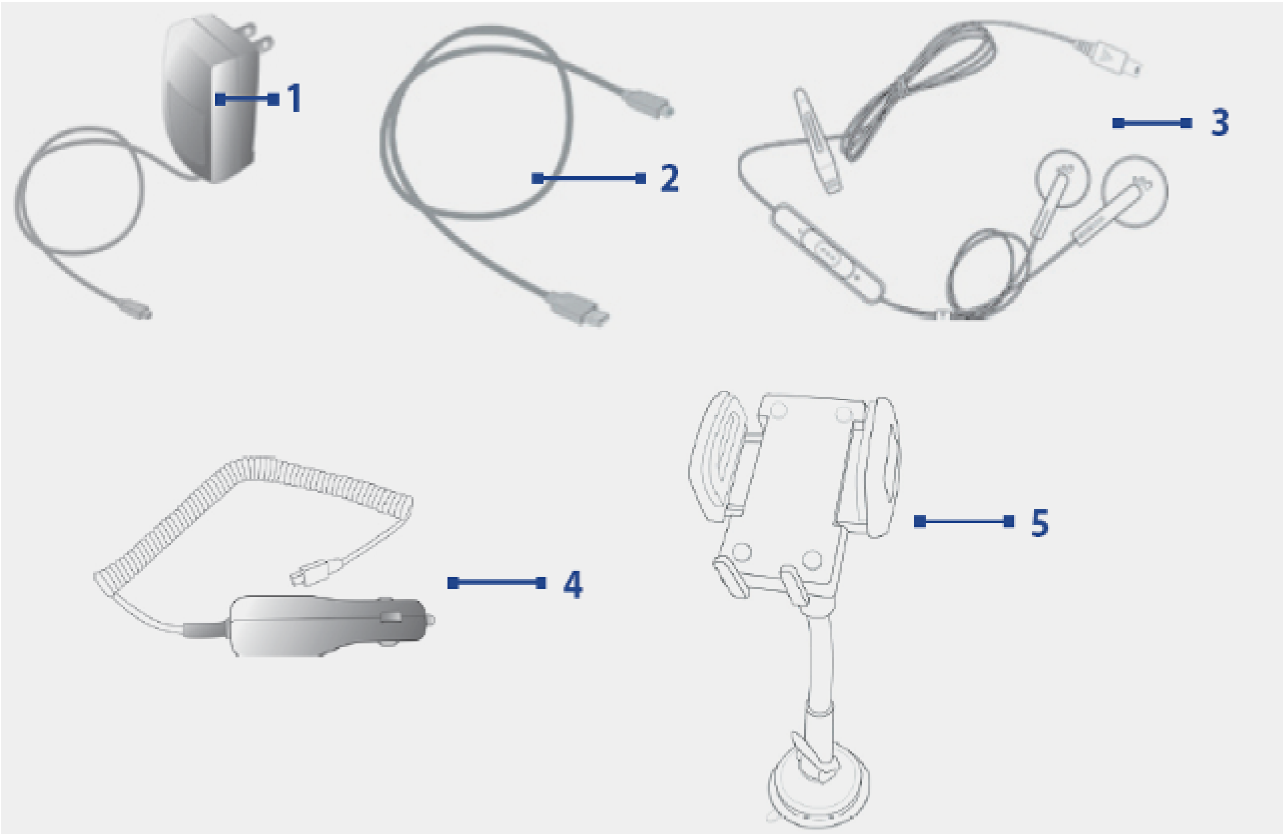
#	Item	Function
1	**Voice command button**	Press to start Voice Speed Dial; press and hold to record a voice note.
2	**Volume Slider**	• Slider up or down to adjust the speaker volume. • During a call, slider up or down to adjust the earpiece volume.
3	**RESET button**	With the stylus, press RESET button to soft-reset your device.
4	**Notification LED 1**	The LED shows the following: • A blinking Blue light for Bluetooth system notification of powered-up and ready to transmit radio frequency signal. • A blinking Green light for Wi-Fi status. • When both Bluetooth and Wi-Fi are enabled, their lights blink alternately. • Amber light for GPS status.
5	**Notification LED 2**	The bi-color LED shows Green and Amber lights for GSM/GPRS/EDGE standby, message and network status as well as for notification and battery charging status.



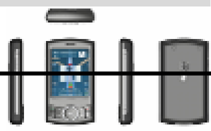
#	Item	Function
6	**Touch Screen**	Tap the screen with the stylus to write, draw, or make a selection.
7	**Left and Right soft keys**	Press to execute the command in the label above the button.
8	**TALK button**	Press to answer an incoming call or dial a number.
9	**GPS button**	Press to launch the GPS software.
10	**START button**	Press to open the Start menu.
11	**Track Wheel**	• Turn clockwise or counterclockwise to move through items on the screen or in the menu. • When using the Camera or GPS software, using it for zooming.
12	**Trackball**	• Roll up, down, left, or right to move through menus and program instructions; carry out the selection by pressing the Trackball. • When using the Camera, use it as the shutter release. • When using the GPS software, use it to move around a GPS map.
13	**OK button**	Press to confirm your data entries, or to exit the program in use.
14	**IE button**	Press to launch Internet Explorer Mobile.
15	**END button**	Press to end a call or to return to the Today screen.
16	**Strap Holder**	It lets you to attach a strap for carrying your device.
17	**Microphone**	Speak into the microphone when receiving or making a phone call or voice recording.
18	**Sync connector/ Earphone jack**	• Use this connector to synchronize data by connecting the provided USB sync cable or to recharge the battery via the provided AC adapter. • You can also connect the provided USB stereo handset for hands-free conversation or for listening FM radio and audio media. FM radio uses the stereo handset as an antenna.
19	**POWER button**	• Press to turn off the display temporarily. This switches your device to sleep mode. You can still receive call and message when your device is in Sleep mode. • Press and hold (for about 5seconds) to turn off the power completely. All functions including the phone will be unavailable to use.
20	**CAMERA button**	Press to launch the Camera; press again to take a photo or video clip, depending on the specified capture mode.
21	**Stylus**	Use the stylus to write, draw, or select items on the touch screen.
22	**Car Antenna Connector**	Connect your device to the car antenna while in a car to have better reception quality.
23	**GPS Antenna Connector**	If you need better GPS signal reception, you can connect an external GPS antenna.
24	**Camera**	Use the camera to take still photos and record video clips.
25	**Self-Portrait Mirror**	Turn the back side of your device to face your self so that your image reflects on the mirror when taking self-portrait shots.
26	**Battery Cover**	Slider out to access the battery compartment.



➢ Accessories

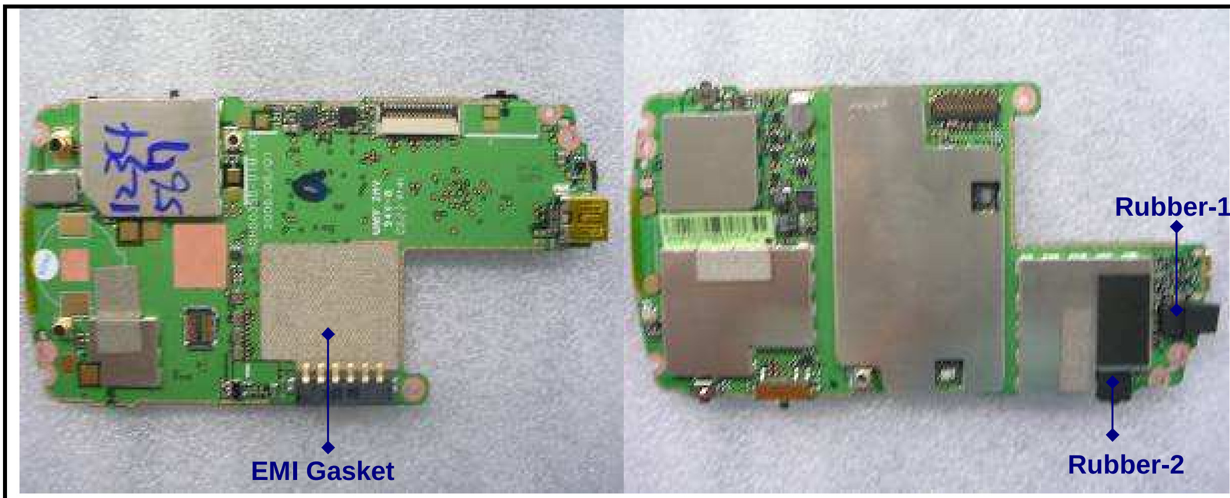


#	Item	Function
1	**AC adapter**	Converts AC to DC for recharging the battery.
2	**USB Sync cable**	Connects your device to a PC and synchronize data.
3	**Stereo handset**	• Provide a volume control slider and a Send/End button. Press a Send/End button to pick up a call or put a call on hold; press and hold the button to end the call. • Make sure you connect this handset when using the FM radio since its uses the handset as an antenna.
4	**Car adapter**	Use it to charge the battery on your device while you are in traveling in a car. Plug it to the sync connector of your device and to the car's cigarette lighter socket.
5	**Car holder**	Use it to mount your device in a car. Press the suction pedestal on the car's windshield, and push the lever to securely attach the holder. The sit your device in the holder, and press both sides of the holder inward to secure the grip.

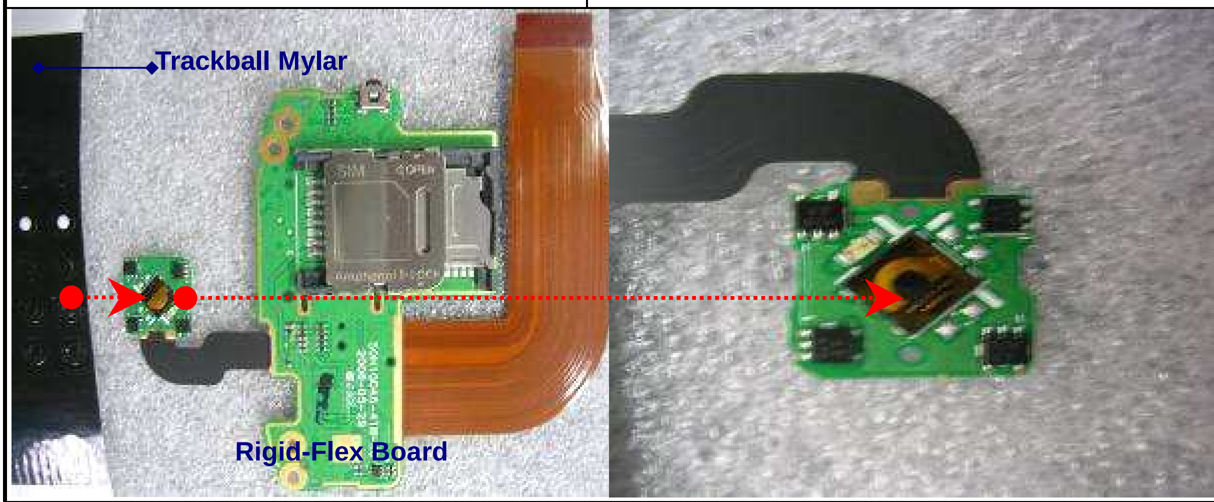


6. Unit Assembly/Disassembly Procedure

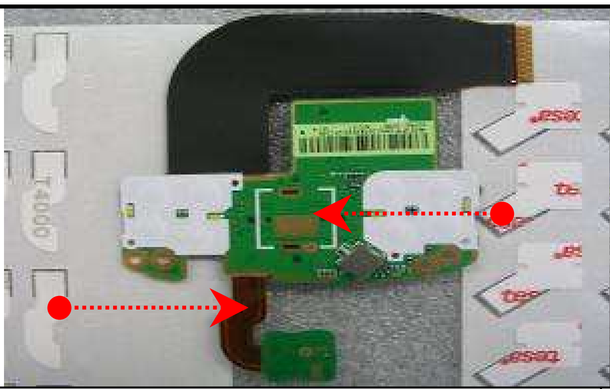
Assembly Procedure

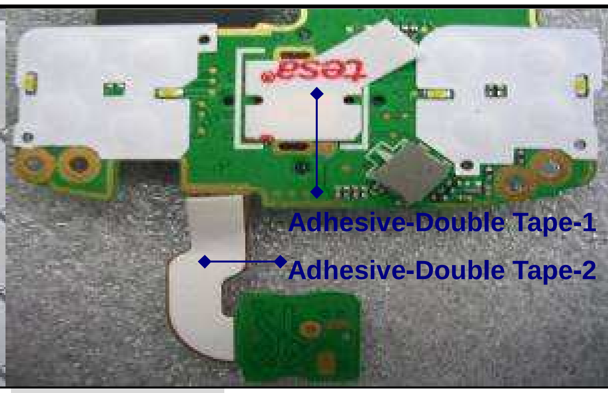


• Stick the **EMI Gaskets** on **M/B**. • Assemble 2 **Rubbers** of Microphone and Reset button on M/B.	**M/B:** 51H00355-00M/Q'ty:1. **[Option]**. **EMI Gasket:** 72H01655-00M/Q'ty:1 **Rubber-1 (MIC):** 76H01495-00M/Q'ty:1. **Rubber-2 (RST button):** 76H01516-00M/Q'ty:1.



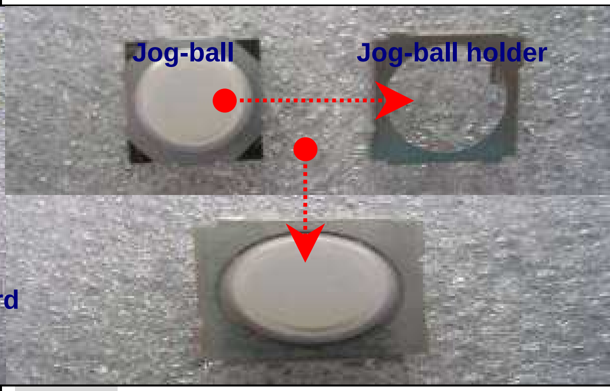
• Stick **Trackball Mylar** on the **Rigid-Flex Board**.	**Rigid-Flex Board:** 51H10046-00M/Q'ty:1.





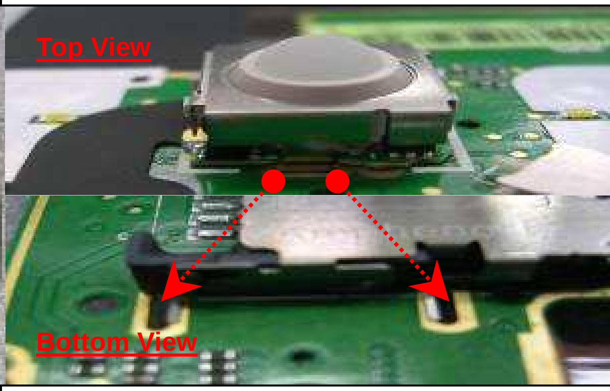
• Stick 2 **Adhesive-Double Tapes** on Rigid-Flex Board.	**Rigid-Flex Board:** 51H10046-00M/Q'ty:1. **Adhesive-Double Tape-1:** 76H01520-00M/Q'ty:1. **Adhesive-Double Tape-2:** 76H01525-00M/Q'ty:1.



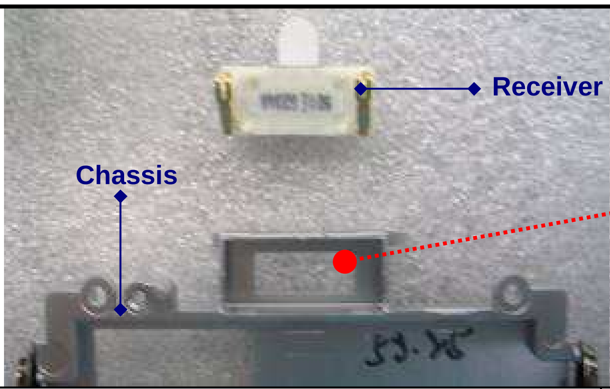


• Remove the white-film from adhesive-double tape and stick the trackball switch board on Rigid-Flex Board. • Assemble **Jog-ball** to **Jog-ball holder**.	**Jog-ball:** 36H00375-00M/Q'ty:1. **Jog-ball holder**: 72H01635-00M/Q'ty:1.





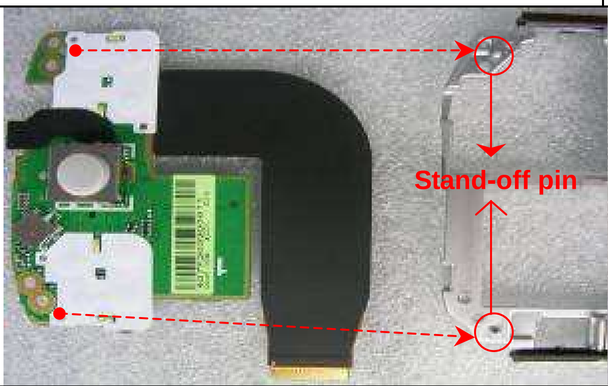
• Assemble the Jog-ball to Rigid-Flex Board. • Please 100% ensure that the hooks of the Jog-ball holder are hooking the PCB's through hold tightly.	

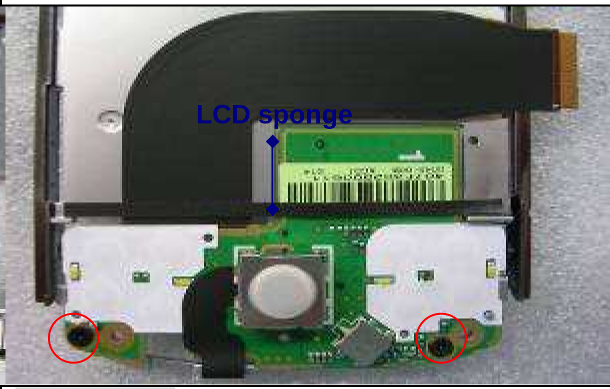




- Remove the white-film from **Receiver** and stick on the **Chassis**.

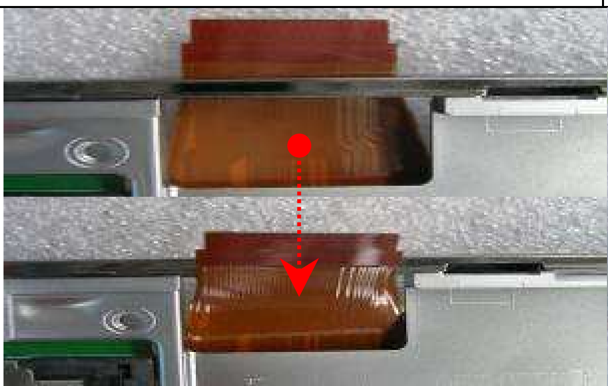
Receiver: 36H00233-00M/Q'ty:1.
Chassis: 74H00720-00M/Q'ty:1.

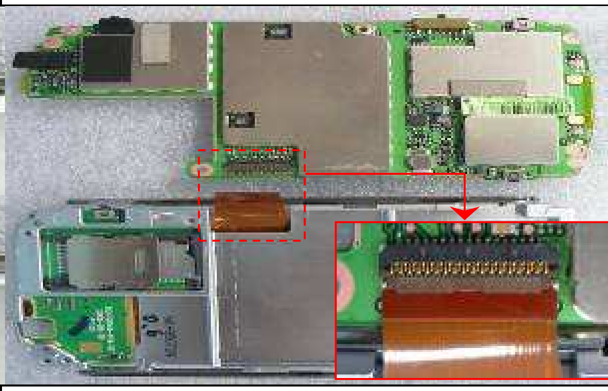




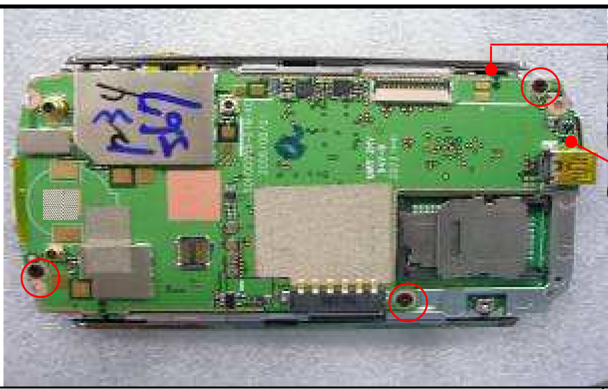
- Fix the Rigid-Flex Board on Chassis via 2 stand-off pin of the Chassis.
- Screw up the Rigid-Flex Board on Chassis.
- Stick the **LCD Sponge** on Chassis.

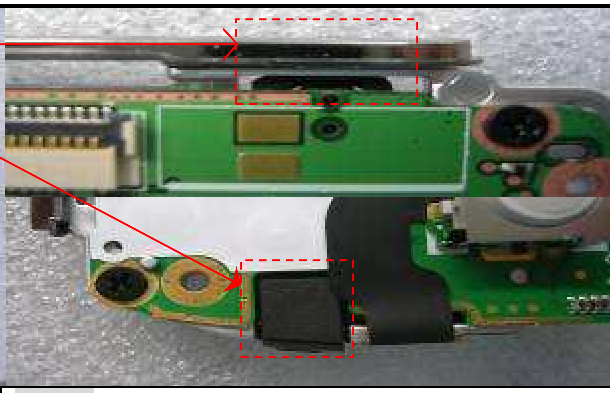
LCD Sponge: 76H01522-00M/Q'ty:1.
Screw: 72H01671-00M/Q'ty:2.





- Insert the FPC of Rigid-Flex Board through into another side of the Chassis.
- Assemble Rigid-Flex FPC to M/B.

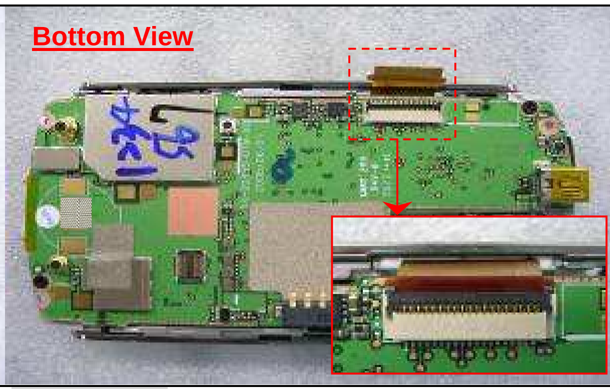




- Assemble the M/B on the Chassis.
- Screw up the M/B on the Chassis.
- Visual inspect the Rubbers of Reset button and Microphone to ensure in right position.

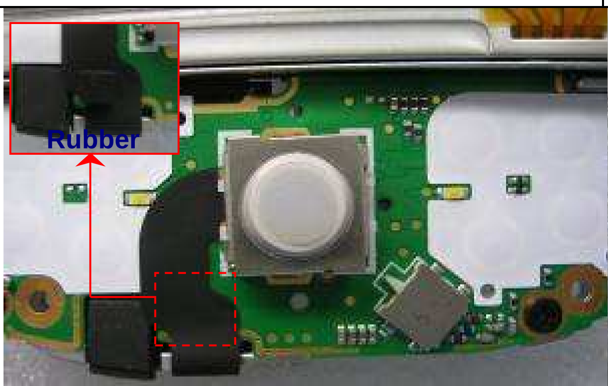
Screw: 72H01671-00M/Q'ty:3.

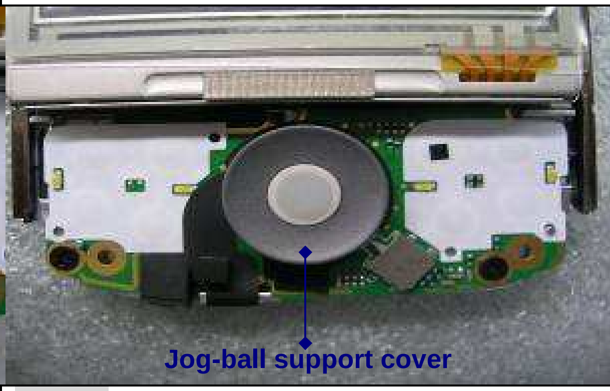




- Assemble the **LCD Module** to the Chassis, and insert the LCD FPC through into the Chassis and connect to M/B properly.

LCD Module: 60H00070-00M/Q'ty:1.

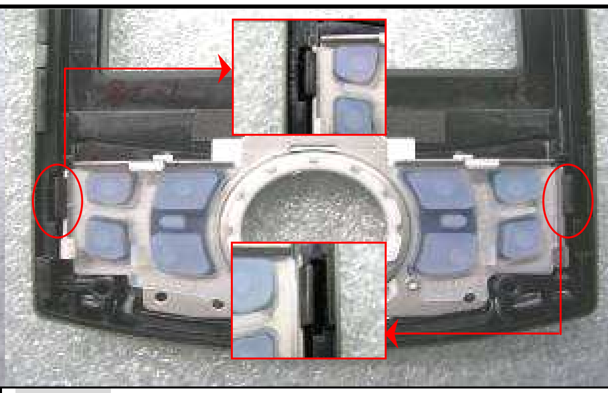




- Stick the **Rubber** on the Rigid-Flex board.
- Assemble the **Jog-ball support cover** to Rigid-Flex board.

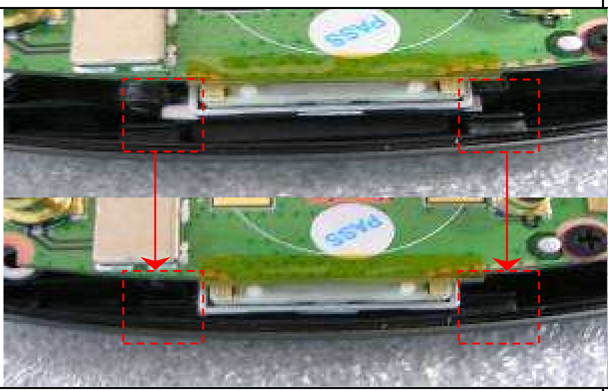
Rubber: 76H01524-00M/Q'ty:1.
Jog-ball support cover: 74H00715-00M/Q'ty:1.





- Assemble the **Keypad** on the **Bezel**; please 100% make sure that the hooks of the Bezel are hooking the Keypad properly.

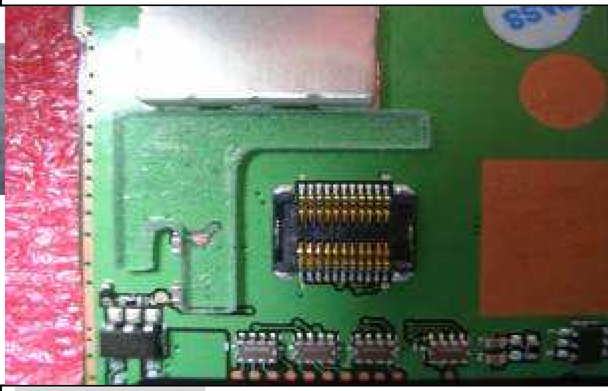
Keypad: 74H00713-00P/Q'ty:1.
Bezel: 74H00719-00M/Q'ty:1 **[Option]**.





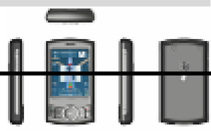
- Assemble the M/B to the Bezel, and insert the edge of the Receiver frame of the Chassis into the Bezel properly.

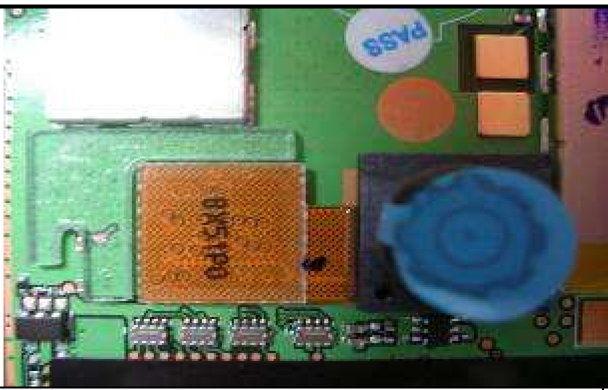




- Stick **Camera spacer** to M/B.

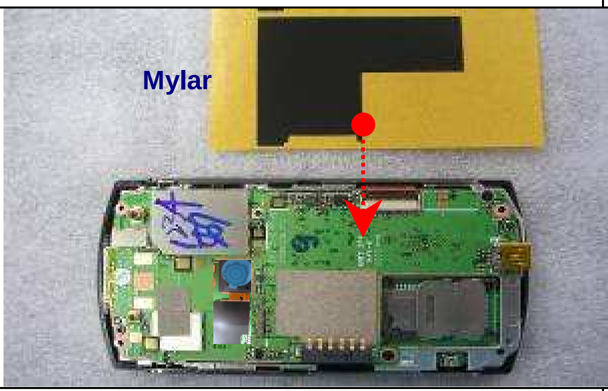
Camera spacer: 76H01556-00M/Q'ty:1.
Camera Module: 54H00187-00P/Q'ty:1.






- Assemble Camera module to M/B.
- Stick **Camera Mylar** to M/B.

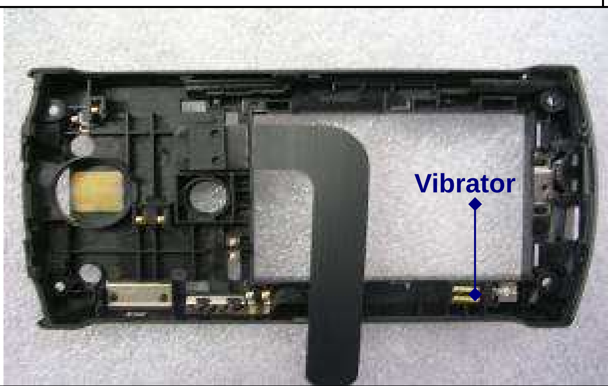
Camera Mylar: 76H01559-00M/Q'ty:1.

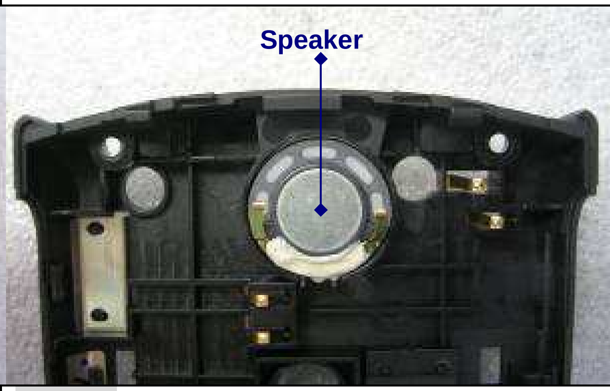




- Stick the **Mylar** on M/B.

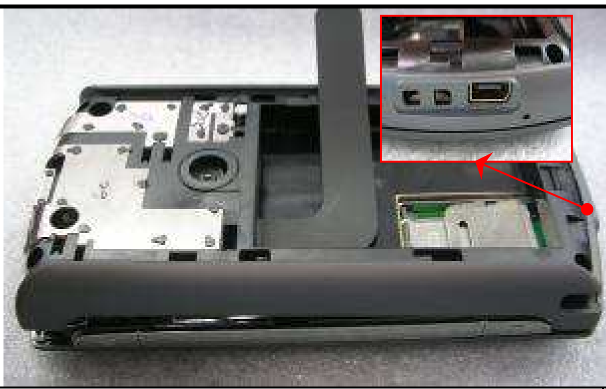
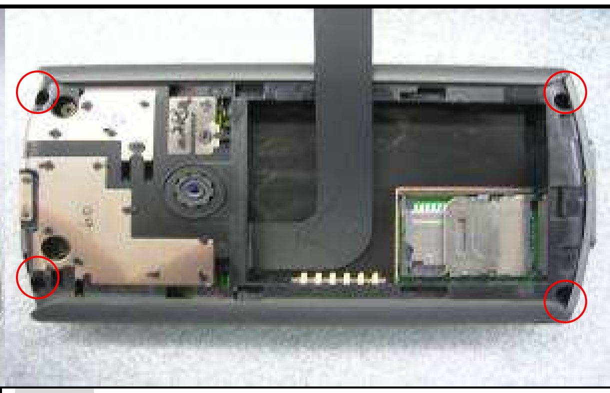
Mylar: 76H01498-00M/Q'ty:1.





- Assemble the **Vibrator** and **Speaker** to the Housing properly.

Vibrator: 36H00180-00M/Q'ty:1.
Speaker: 36H00420-00M/Q'ty:1.
Housing: 74H00723-00M/Q'ty:1.

- Assemble the Housing to M/B properly.
- Screw up the Housing to M/B.

Screw: 72H00951-00M/Q'ty:4.





- Assemble **Antenna Cover** to Housing.

Antenna Cover: 74H00721-00M/Q'ty:1.

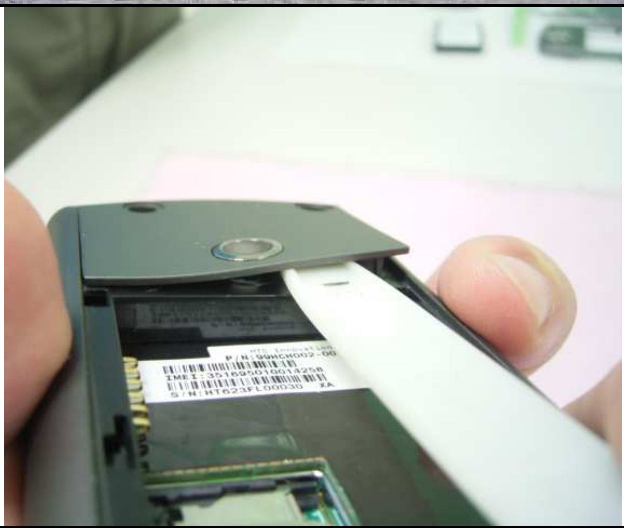
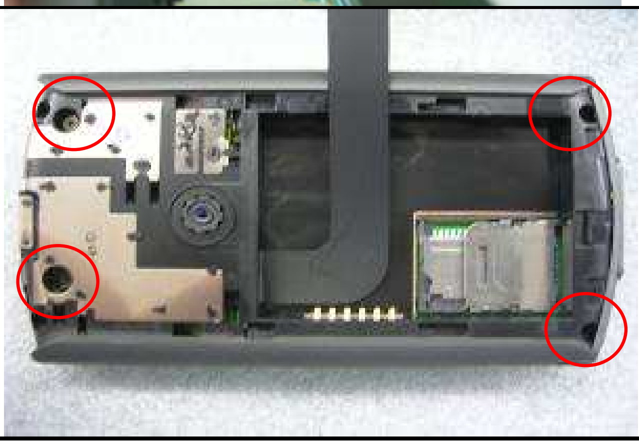


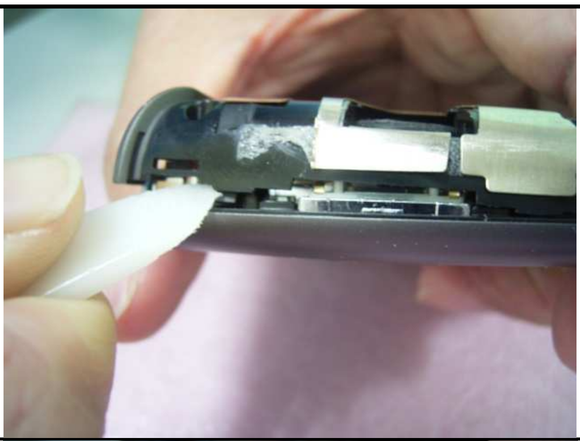
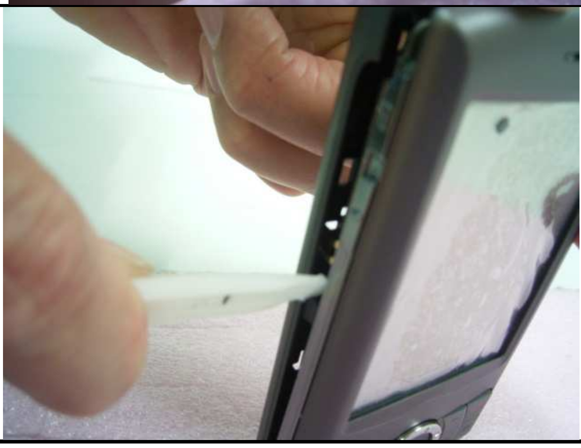


- Assemble the **Battery** and **Battery Cover**.
- Insert the **Stylus** to device properly.

Battery: 35H00062-04M/Q'ty:1.
Battery Cover: 74H00722-00M/Q'ty:1 **[Option]**.
Stylus: 74H00712-00M/Q'ty:1.

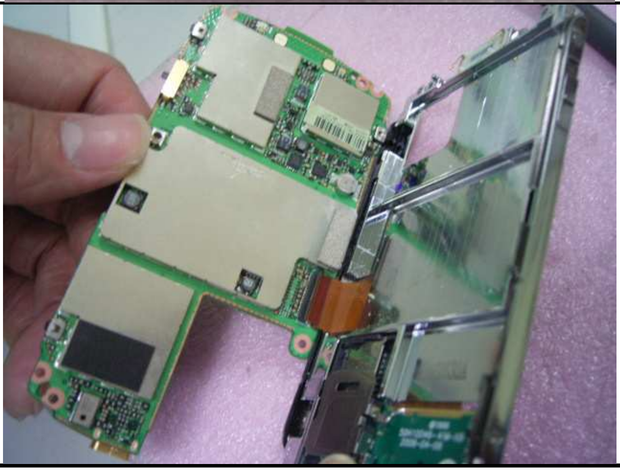
Disassembly Procedure

	Open battery cover and take off the battery
	Insert a plastic stick into the beside the camera lens to unlock the antenna cover
	Unfasten 4 screws on the main unit

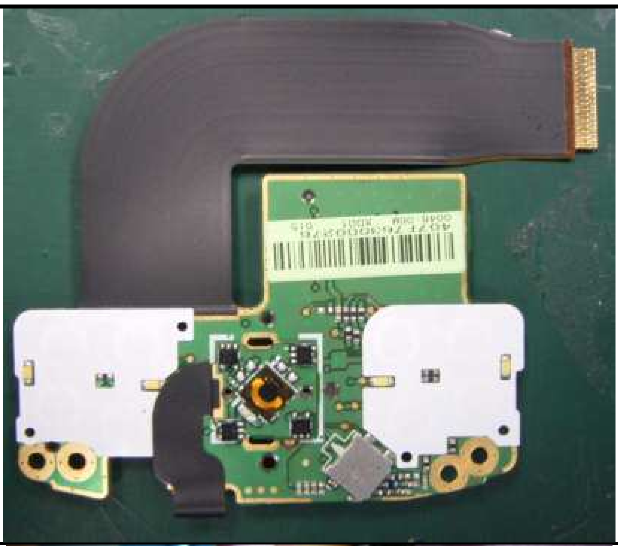
	Insert a plastic stick under the housing and push up to unlock hook of the antenna cover (Step1)
	Push up to unlock hook of the antenna cover (Step2)
	Move the stick slightly around the device to unlock the hook (Step3)

	Move the stick slightly around the device to unlock the hook (Step4)
	Move the stick slightly around the device to unlock the hook (Step5)
	Separate main board and housing

	Insert a plastic stick into space between chassis and bezel to unlock chassis and bezel
	Separate chassis ad bezel
	Open LCM FPC gate and pull off the LCM FPC

	Peel off the LCM from the chassis
	Unfasten 3 screws on the main board
	Open the switch board FPC gate and pull off the switch board FPC to separate the chassis and main board

	Use plastic stick to separate the camera from main board
	Unfasten 2 screws of the switch board
	Take off jogball supporter

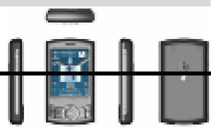
	Take off jogball holder from the switch board
	Use a plastic stick to push speaker out of the housing to separate
	Remove vibrator from the housing

	Pull hook of the bezel and push the keypad out of the bezel

7. Function Test Procedure

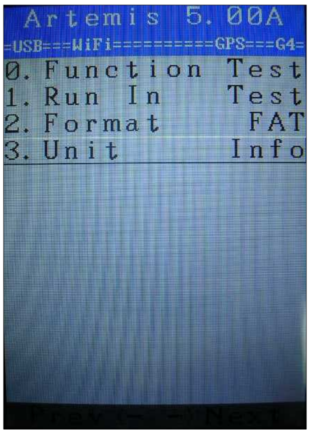
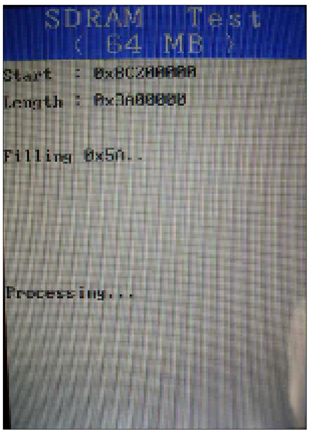
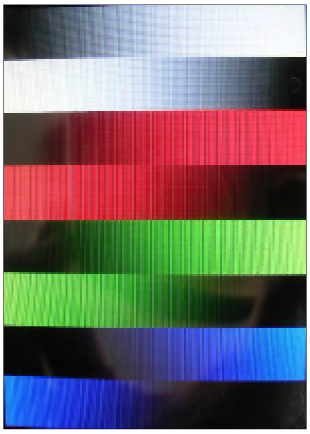
7.1 Test Plan

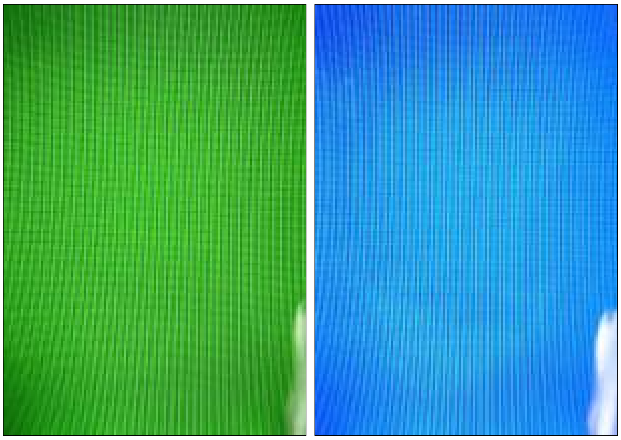
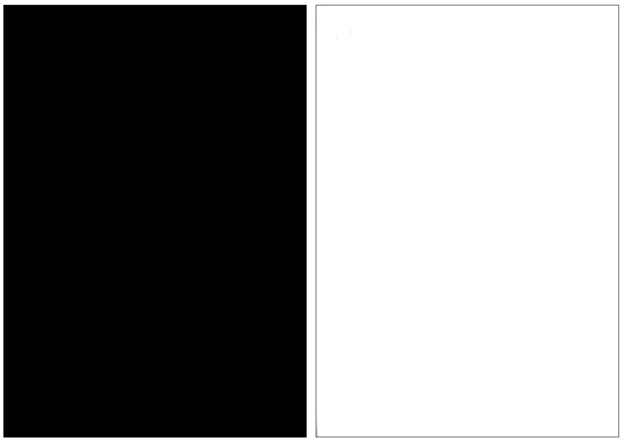
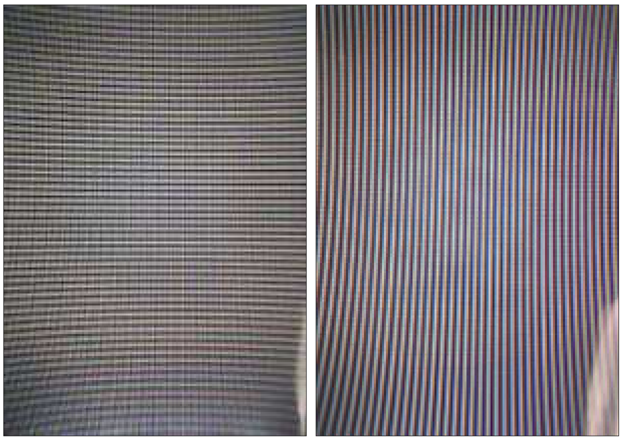
Mode	No	Item	Description	Remark
Diagnostic		**Function Test**		
	1	SDRAM Test	RAM memory test.	
	2	Display Test	Color bar/R/G/B/Black/White/Gray pattern.	
	3	Touch Screen Test	Align screen test.	
	4	LED Test	Green/Red/Blue/Key Pad.	
	5	Key Test	Send/End/GPS/IE/Soft1,2/Start/OK/Up/Down/Left/Right /Action/Record/Volume Up, Down/Power/Camera.	
	6	Wheel	Clockwise, Anti-clockwise test.	
	7	B. L Test	Front light test (On/Dim/Off).	
	8	Timer Test	RTC (Real time clock) test.	
	9	SD Card Test	SD card Read/Write test.	
	10	Mega SIM Test	Mega SIM card test.	Option
	12	Checksum Test	ROM checksum test.	
	13	Battery Test	Battery info check.	
	14	Vibrator Test	Vibrator on test.	
	15	Speaker Play Test	Speaker out test.	
	16	Receiver Play Test	Receiver out test.	
	17	Headset Play Test	Headset out test.	
	18	Int. Rec-Spk out Test	Internal MIC record and play to Speaker test.	
	19	Int. Rec-Rev out Test	Internal MIC record and play to Receiver test.	
	20	Int. Rec-HST out Test	Internal MIC record and play to Headset test.	
	21	HST Rec-HST out Test	External MIC record and play to Headset test.	
		Run-in Test		
	1	1 Hour	1 Hour Run-in Test/Press Soft-1 key.	Option
	2	2 Hours	2 Hours Run-in Test/Press Soft-2 key.	Option
	3	4 Hours	4 Hours Run-in Test/Press Start key.	Fixed
	4	8 Hours	8 Hours Run-in Test/Press OK key.	Option
		Format FAT // Clear PIN (Personal information, talk times)		
		Unit Information		
WinCE	1	USB Test	USB link test (Microsoft ActiveSync).	
	2	Camera Test	Camera test.	
	3	Bluetooth Test	Bluetooth test.	
	4	WLAN Test	WLAN test.	
	5	GPS Test	GPS test.	
	6	FM Test	FM radio test	



7.2 Test Procedure

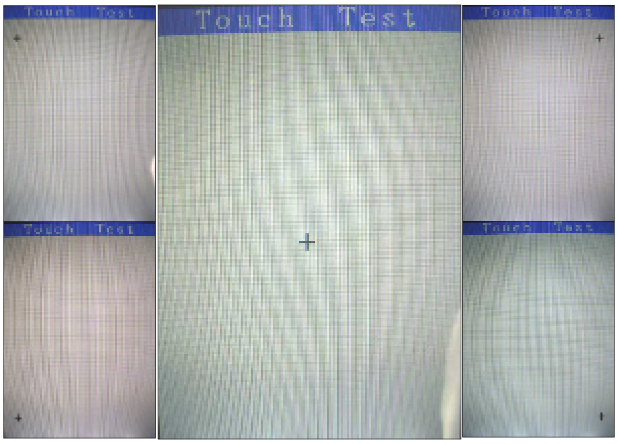
7.2.1 Diagnostic Test

Main Menu/Function Test Menu	
I. Turn the device power off and insert Diagnostic SD card. II. Press and hold **Power + Record** button, including **Reset** button, and then enter Diagnostic mode. III. Using Jog-ball to select the test item and move to next page as well. IV. Select item "Function Test" to find the Function test menu.	 
SDRAM Test	
I. Press Action key (Jog-ball) to select SDRAM Test on Function test menu. II. The program will test SDRAM block automatically. III. The screen will return to Function test menu after the test is finished.	
Display Test (Color bar and RED pattern)	
I. Press Action key (Jog-ball) to select Display Test on Function test menu. II. After the test pattern is show up, please check the pattern if any un-uniform color or chromatist. III. Press Action key (Jog-ball) to go next test pattern.	 

Display Test (GREEN/BLUE pattern)	
V. Press Action key (Jog-ball) to go next test pattern.	
Display Test (BLACK/WHITE pattern)	
VI. Press Action key (Jog-ball) to go next test pattern.	
Display Test (Crabwise/Straight lines pattern)	
VII. Press Action key (Jog-ball) to exit and return to Function test menu.	

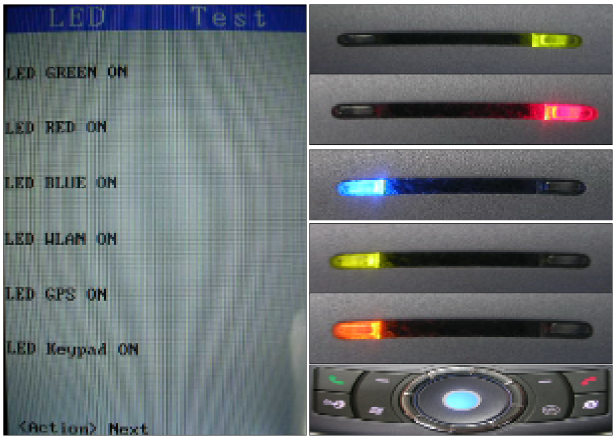
Touch Screen Test

I. Press Action key (Jog-ball) to select Touch Screen Test on Function test menu.
II. Using Stylus to tap and follow the symbol "+" at Center, Up-left, Down-left, Down-right position of the screen to perform the test.
III. The screen will return to Function test menu after the test is finished.



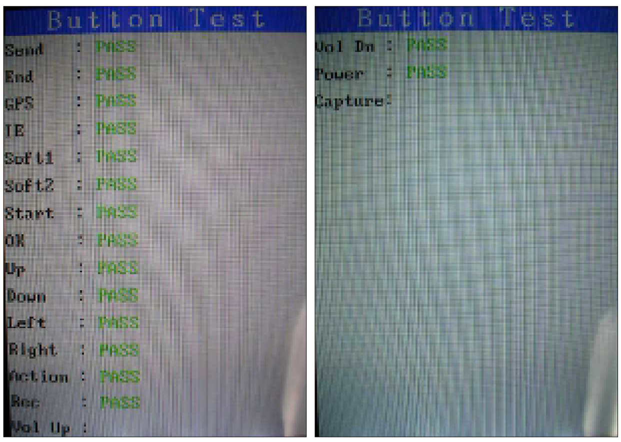
LED Test

I. Press Action key (Jog-ball) to select LED Test on Function test menu.
II. Press Action key (Jog-ball) and follow the instruction on screen to perform the LED inspection test **(Green, Red, Blue, WLAN, GPS, and Keypad)**.
III. Press Action key (Jog-ball) to exit and return to Function test menu.



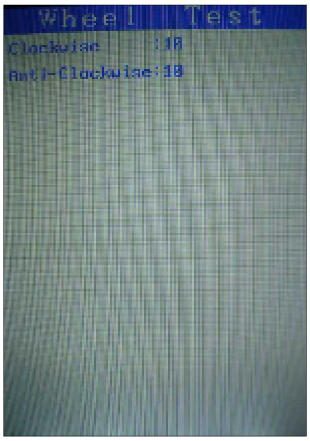
Key Test

I. Press Action key (Jog-ball) to select Key Test on Function test menu.
II. Follow the instruction on screen to perform the Key/Button test **(Send, End, GPS, IE, Soft1/2, Start, OK, Up/Down/Left/Right, Action, Record, Volume Up/Down, Power, and Camera)**.
III. The screen will return to Function test menu after the test is finished.



Wheel Test

I. Press Action key (Jog-ball) to select Wheel Test on Function test menu.
II. Wheeled the dial scale clockwise from scale1 to 10 to check the acting area is functional.
III. Wheeled the dial scale anti clockwise from scale1 to 10 to check the acting area is functional.
IV. The screen will return to Function test menu after the test is finished.



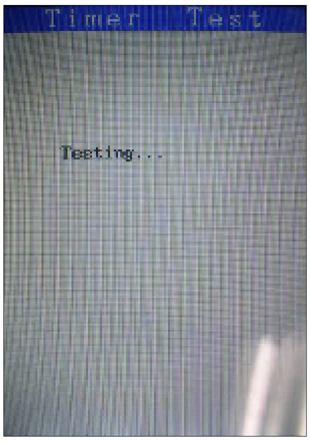
LCD Back Light Test

I. Press Action key (Jog-ball) to select B.L Test on Function test menu.
II. Press Action key (Jog-ball) to switch the LCD backlight level from Super (100%) -> Typical (75%) -> High (50%) -> Low (25%) -> Off (0%).
III. Press Action key (Jog-ball) to exit and return to Function test menu.



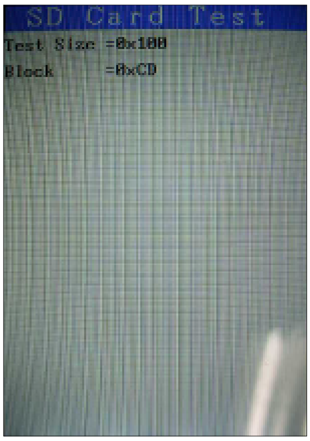
Timer (RTC) Test

I. Press Action key (Jog-ball) to select Timer Test on Function test menu.
II. The screen will return to Function test menu after the test is finished.



SD Card Test

I. Press Action key (Jog-ball) to select SD Card Test on Function test menu.
II. The screen will return to Function test menu after the test is finished.



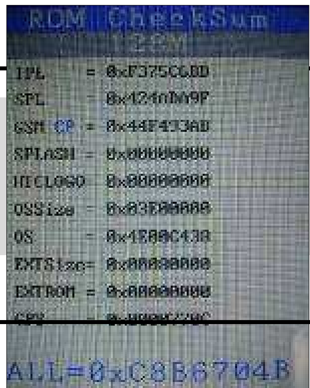
Mega SIM Test (Option by Model)

I. Please inset Mega SIM card to the device before test.
II. Press Action key (Jog-ball) to select Mega SIM Test on Function test menu.
III. The screen will return to Function test menu after the test is finished.



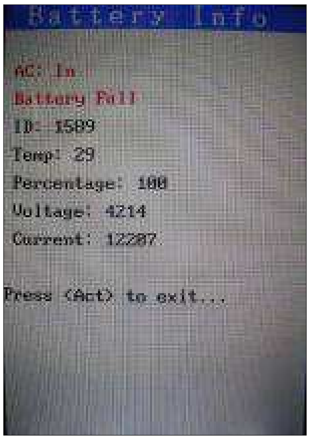
ROM Checksum Inspection

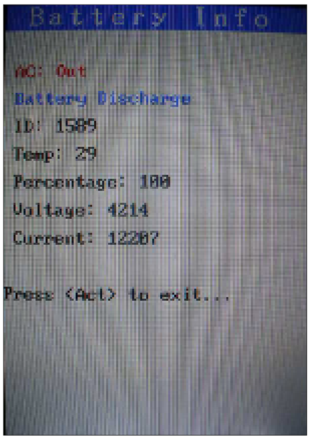
I. Press Action key (Jog-ball) to select ROM Checksum Inspection on Function test menu.
II. Press Action key (Jog-ball) to exit and return to Function test menu.



Battery Test

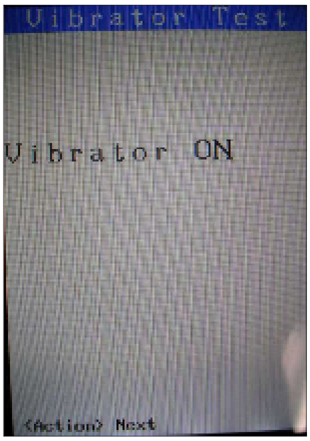
I. Press Action key (Jog-ball) to select Battery Test on Function test menu.
II. Plug In/Out the AC-Adapter to check the battery charging/discharging status.
III. Press Action key (Jog-ball) twice time to exit and return to Function test menu.





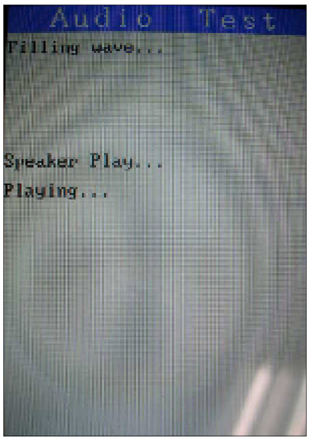
Vibrator Test

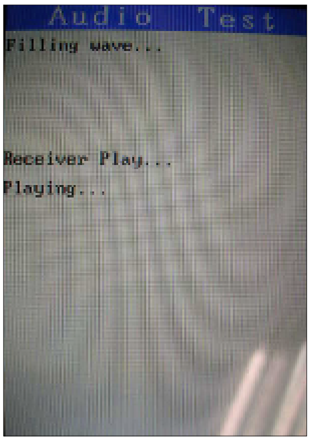
I. Press Action key (Jog-ball) to select Vibrator Test on Function test menu.
II. Press Action key (Jog-ball) to exit and return to Function test menu.

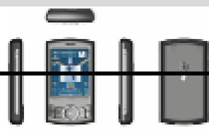


Speaker Play, Receiver Play Test

I. Press Action key (Jog-ball) to select Speaker Play Test on Function test menu.
II. Press Action key (Jog-ball) to select Receiver Play Test on Function test menu.
III. The screen will return to Function test menu after the test is finished.

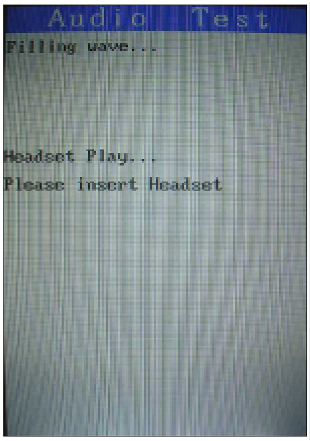






Headset Play Test

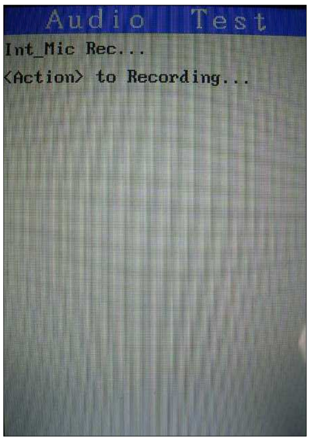
I. Press Action key (Jog-ball) to select Headset Play Test on Function test menu.
II. Insert Headset and hear the sound from device.
III. The screen will return to Function test menu after the test is finished.

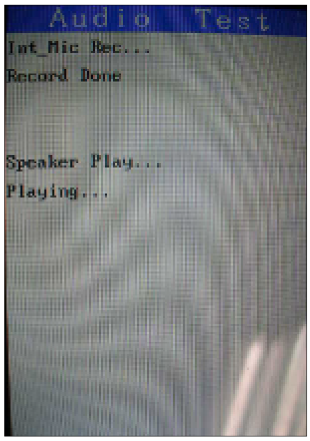




Internal Record Speaker Out Test

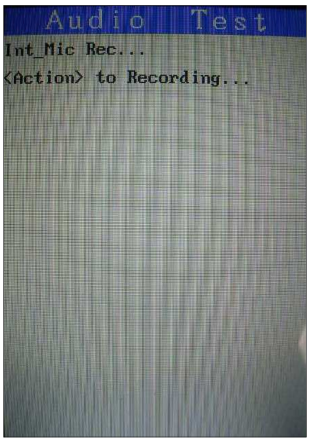
I. Press Action key (Jog-ball) to select Internal Record Speaker Out Test on Function test menu.
II. Press Action key (Jog-ball) to record the sound.
III. Check the voice quality after the sound playback from speaker.
IV. The screen will return to Function test menu after the test is finished.

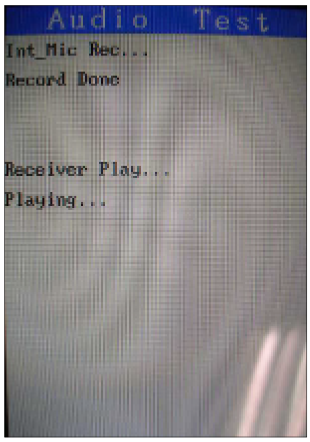




Internal Record Receiver Out Test

I. Press Action key (Jog-ball) to select Internal Record Receiver Out Test on Function test menu.
II. Press Action key (Jog-ball) to record the sound.
III. Check the voice quality after the sound playback from receiver.
IV. The screen will return to Function test menu after the test is finished.





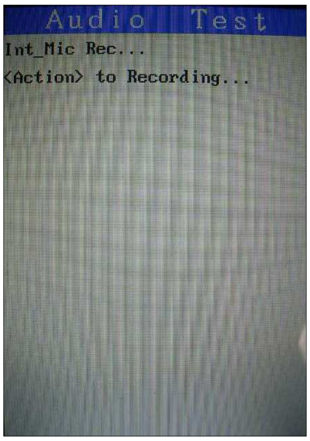
Internal Record Headset Out Test

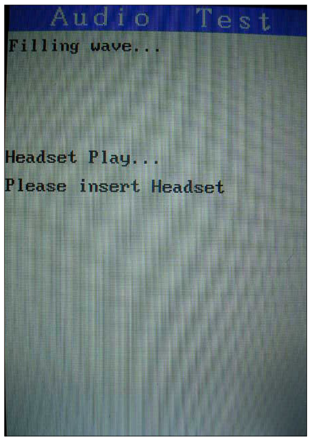
I. Press Action key (Jog-ball) to select <u>Internal Record Headset Out Test</u> on Function test menu.

II. Press Action key (Jog-ball) to record the sound.

III. Inset headset and check the voice quality when the sound playback from device.

IV. The screen will return to Function test menu after the test is finished.





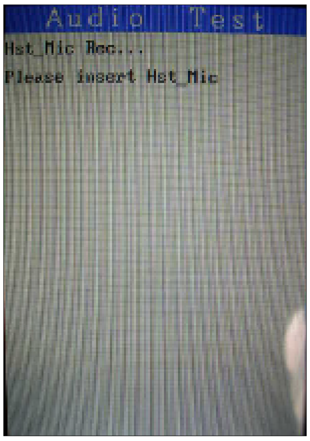
Headset Record Headset Out Test

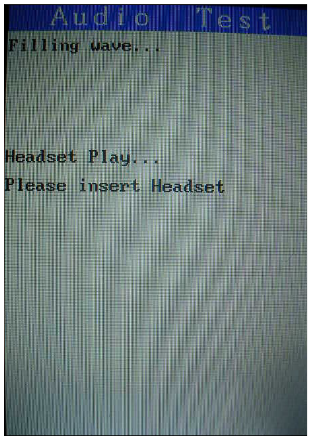
I. Press Action key (Jog-ball) to select <u>Headset Record Headset Out Test</u> on Function test menu.

II. Insert headset and press Action key (Jog-ball) to record the sound.

III. Check the voice quality after the sound playback from device.

IV. The screen will return to Function test menu after the test is finished.



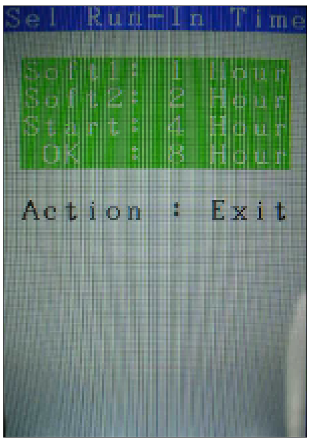


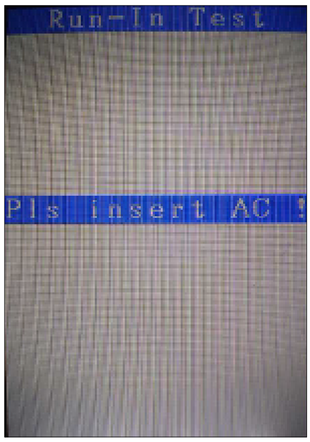
Run-In Test

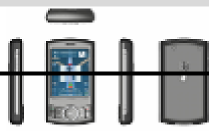
I. Return to Main Menu and press Action key (Jog-ball) to select <u>Run In Test</u>.

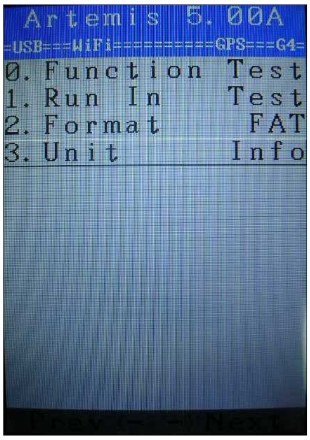
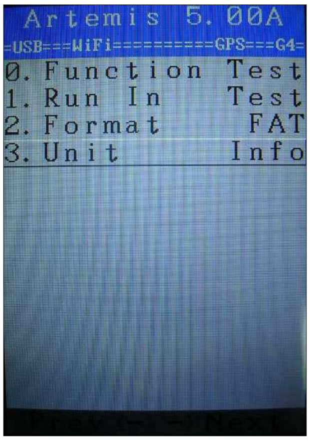
II. Insert AC-adapter and press Start key to setup Run-In hour to 4.

III. The program will perform cycling test (Vibrator, SDRAM, LED, Display, BL, Timer, and Audio) within 4 hours.





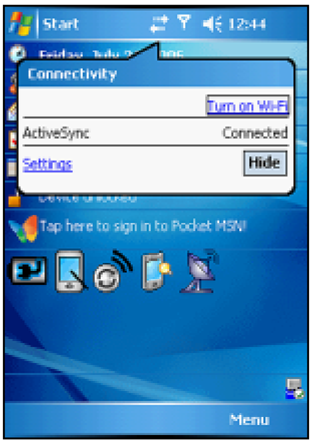


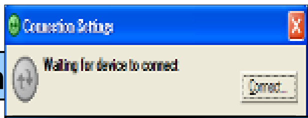
Format FAT // Clear PIN (Personal information, talk times)	
I. Return to Main Menu and press Action key (Jog-ball) to select <u>Format FAT</u>. II. The screen will return to Function test menu after the test is finished.	 
Unit Information	
I. Return to Main Menu and press Action key (Jog-ball) to select <u>Unit Information</u>. II. Press Action key (Jog-ball) to exit and return to Main menu.	 

7.2.2 WinCE Test

USB Test

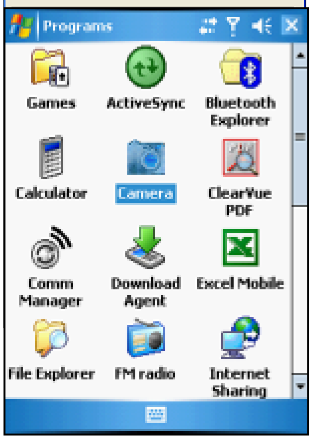
I. Start up the Microsoft® ActiveSync®program in the PC.
II. Insert USB cable and connect unit to desktop/ or laptop.
III. The USB to PC icon -> is appears on the Today screen when your device is connected to your desktop/ or laptop.

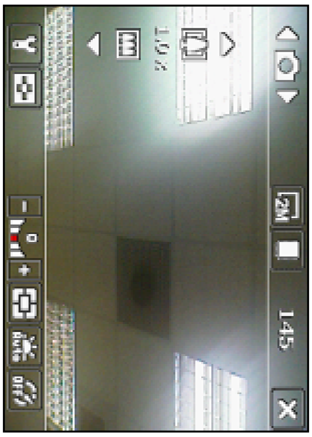




Cam

I. Tap Start->Program->Camera or Press Camera button to turn on the Camera.
II. Make sure the device will present and enter the preview display.
III. Check camera pre-view and image quality.

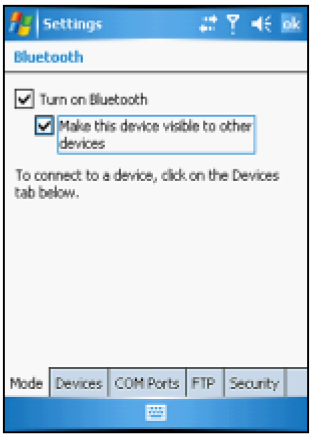


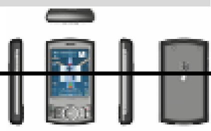


Bluetooth Test - 1

I. Tap icon Comm Manager on the Today screen and turn on Bluetooth.
II. Tap the icon "Settings" down-right the corner of the screen and select the "Make this device…." Checkbox.
III. Press Action key (Jog-ball) to go next test pattern.





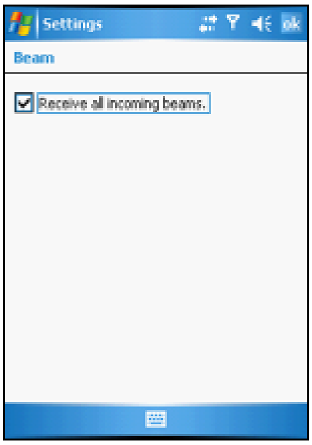


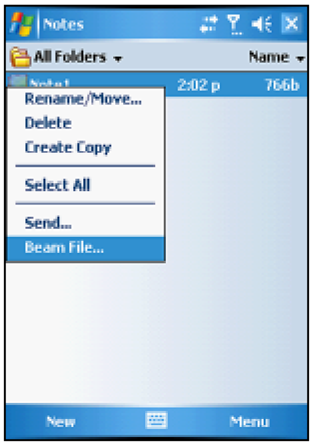
Bluetooth Test - 2

V. Tap Start->Settings->Connections->Beam and select “Receive all….” Checkbox.

VI. To create a file, tap Start->Programs ->Notes->New.

VII. Tap and select the “Beam file…”

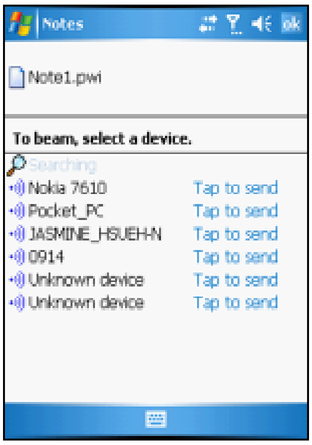


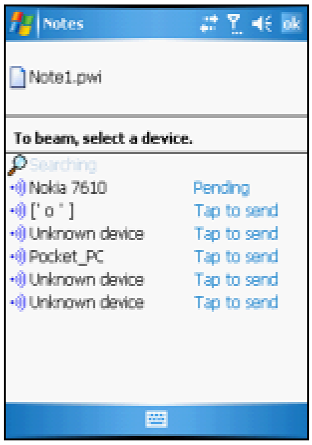


Bluetooth Test - 3

VIII. Once device is searched, tap the device to send the file.

IX. Return to Today screen and tap Start->Program->Comm Manager ->Bluetooth to turn off Bluetooth.





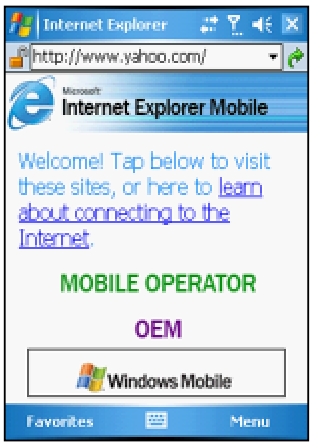
WLAN Test

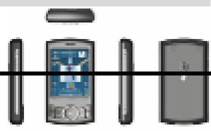
I. Tap icon Comm Manager on the Today screen and turn on WLAN.

II. Select the hot-spot/ or access point which searchable and appears on screen.

III. Once the hot-spot (access point) is connected, press the IE button and logon Internet.







GPS Test

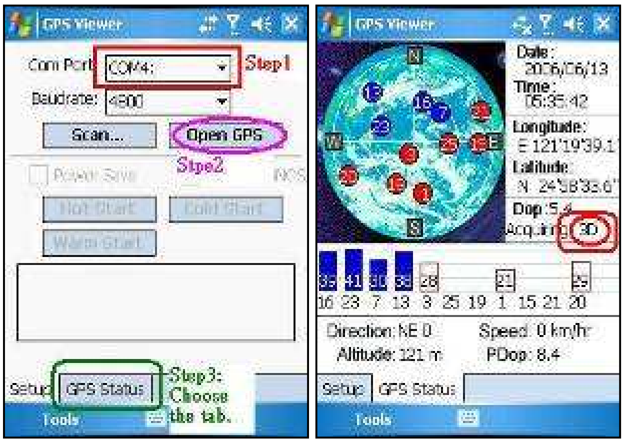
I. Install GPS tool to device and execute the program.

II. Setup the COM port to COM4.

III. Place device in GPS receptor coverage area and tap the icon "Open GPS".

IV. Check the GPS status as picture shown.

[Note]: Please build up similar GPS test station in repair center.

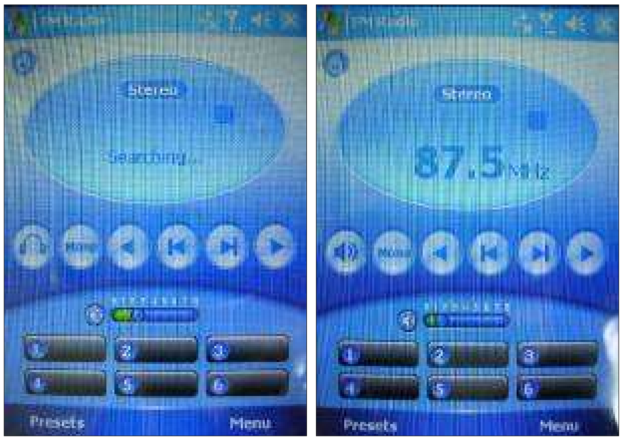


FM Test

I. Insert headset in device and tap Start-> Program->FM radio.

II. Tap the search icon to search the radio channel.

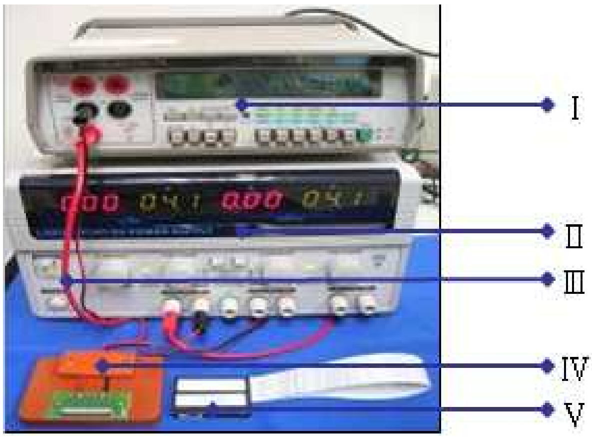
III. Once the channel is searched, tap headset icon and switch to speaker mode, make sure the FM radio is functional.



7.2.3 Leakage Current Measurement

Equipments & Fixtures

I. Micro-Current Meter.
II. Power Supply.
III. Cable.
IV. Current series jig.
V. Battery with extension cable.



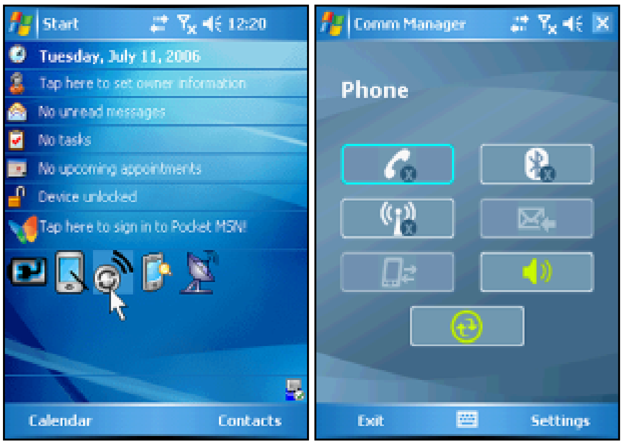
Connect device to test Jig

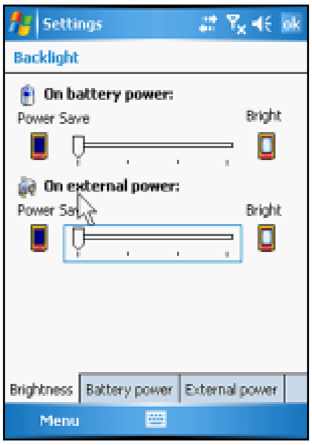
VI. Insert battery/ with extension cable to UUT (unit under test).
VII. Turn on the device and enter WinCE mode.



WinCE setup

VIII. Tap the icon on the Today screen.
IX. Turn on Flight mode.
X. Turn off WLAN, BT, and FM radio.



Leakage current measurement when Backlight off/Sleep mode	
XI. Tap Start->System->Backlight. XII. Adjust the backlight level to 0% and checks the current from current meter. [Note1] XIII. Press power button to initial device enter sleep mode and checks the current from current meter. [Note2] **[Note1]:** 49mA (Spec≦105mA). **[Note2]:** 1.88mA (Spec≦3mA).	  

Conclusion	
I.	If current consumption test PASS when UUT in Flight and Sleep mode, it means that the M/B works normal.
II.	If current consumption test FAIL when UUT in Flight or Sleep mode, it means that the M/B works abnormal, please replace M/B and re-test again.

8. OS upgrade procedure

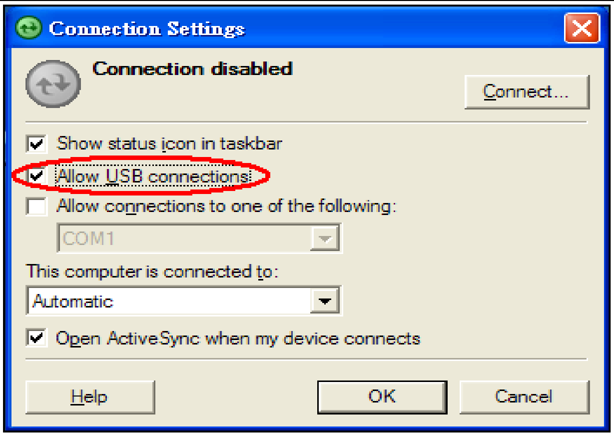
8.1 RUU (Re-flash Upgrade Utility)

Connect device to PC

I. Setting and allow USB connections in Microsoft ActiveSync.

II. Connect your device and desktop/ or laptop via USB cable.

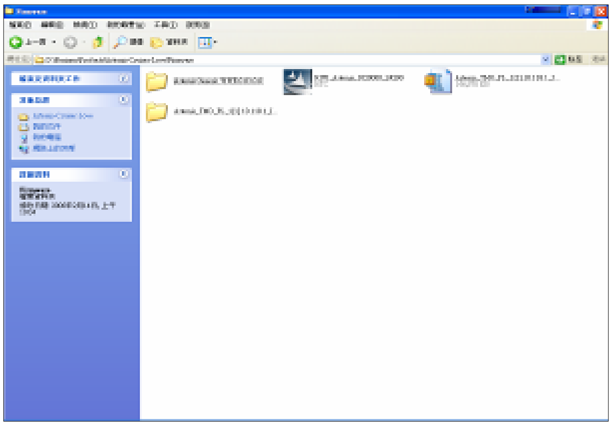
III. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.



Download OS Image from SDO

IV. Download OS image from SDO. http://htcscm10.htc.com.tw/SDO

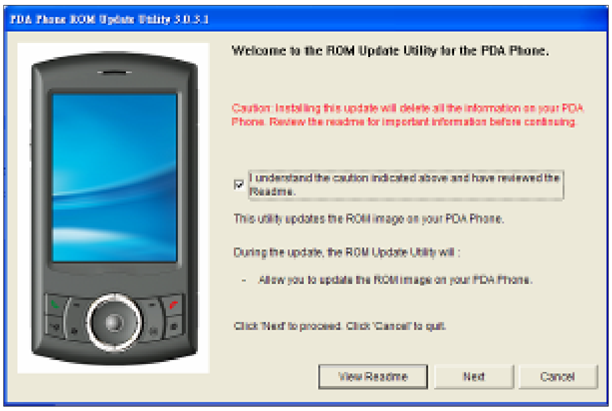
V. Un-zip the file and execute RUU program.



RUU - 1

VI. Read the pop-up message form ROM update utility and select the "I understand…" checkbox.

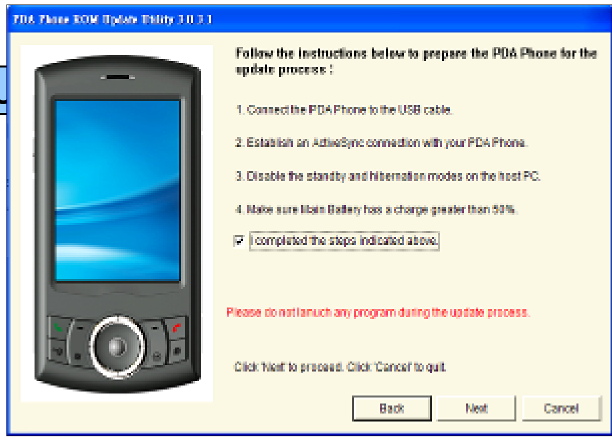
VII. Click "Next" to proceed.



RUU - 2

VIII. Read the pop-up message form ROM update utility to follow and perform the instructions and select the “I completed…” checkbox.

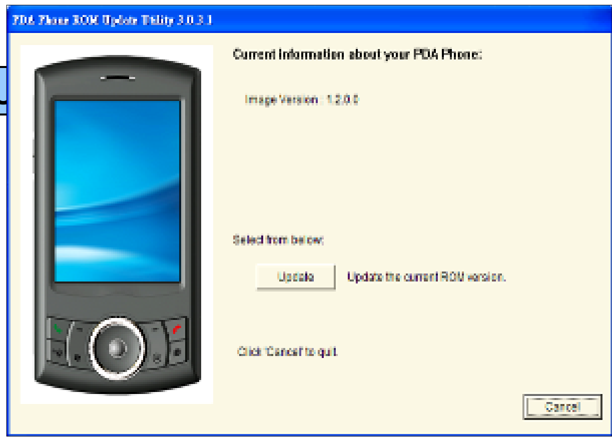
IX. Click “Next” to proceed.



RU

X. Current image version confirmation.

XI. Click “Update” to proceed.



RU

XII. Double verify the ROM revision which you want to update before re-flash procedure.

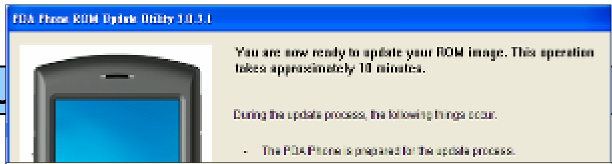
XIII. Click “Next” to proceed.



RUU - 5

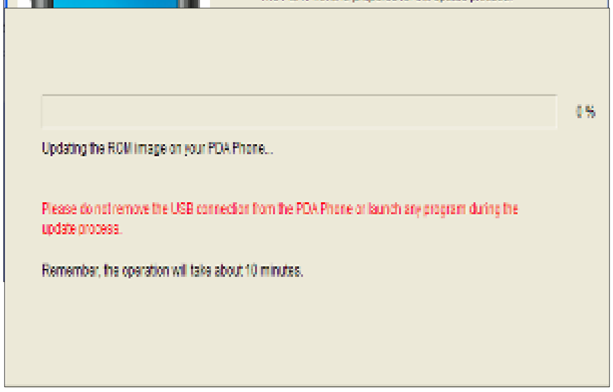
XIV. Read the information from pop-up message and the OS update procedure will takes 10 minutes long.

XV. Click “Next” to proceed.



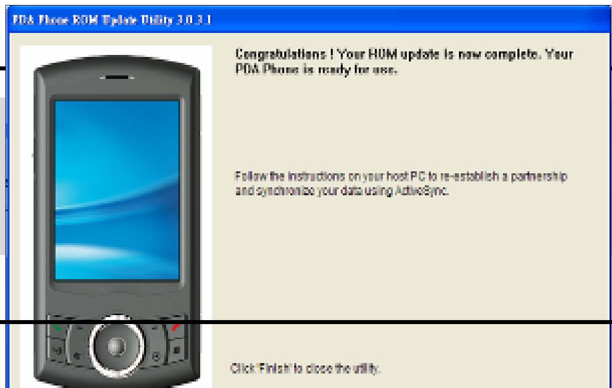
RU

XVI. You can see the update progress from your PC and in your device.

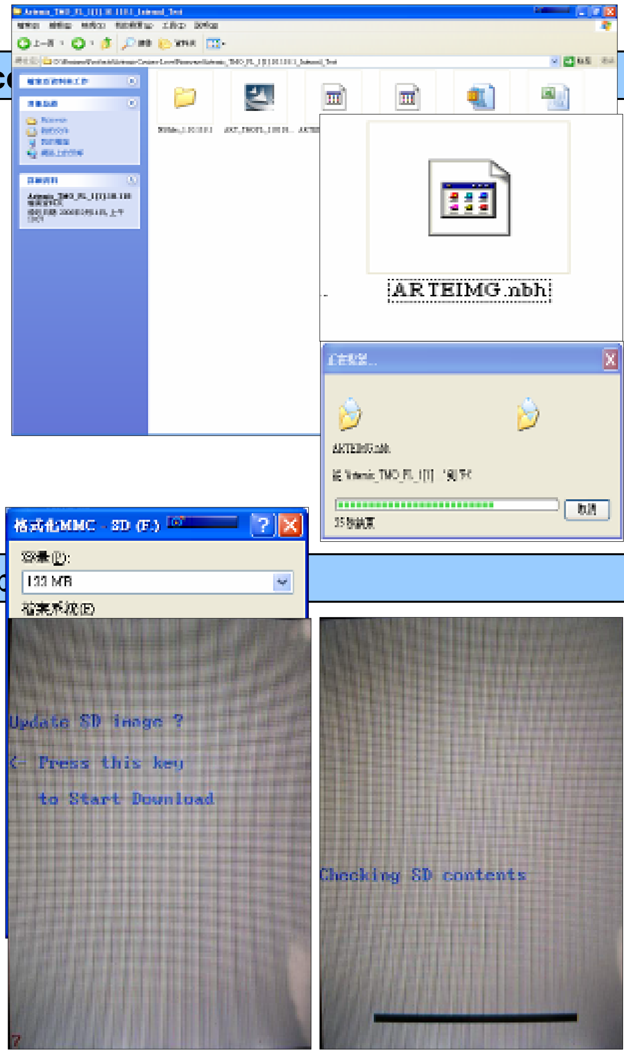


RUU - 7

XVII. The OS upgrade is finished, click “Finish” to close the utility.



8.2 SD card upgrade

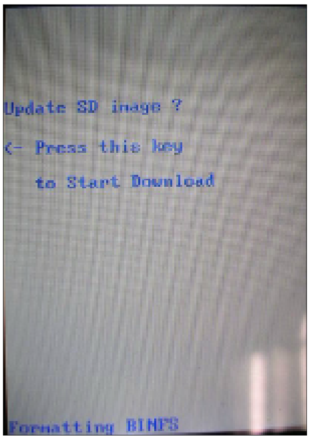
Download OS Image from SDO	
I. Download OS image from SDO. http://htcscm10.htc.com.tw/SDO II. Un-zip the image file.	
Format SD card and c	
III. Select file system and format the SD card to FAT32 mode. IV. Copy image file XXX.nbh to the micro SD card and rename to **Arteimg.NBH**.	
SD Up	
V. Turn the device power off and insert Diagnostic SD card. VI. Press and hold **Power + Record** button, and **Reset** button to entry Boot loader mode. VII. Press Volume Up/Down key to start upgrade procedure.	

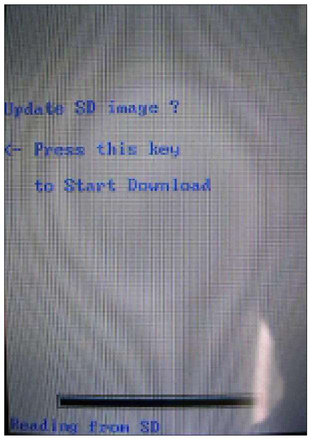
SD Upgrade - 2

VIII. Format BINFS.

IX. Reading source code from SD card.

[Note]: This process will takes 5 mins, please don’t power off the device.

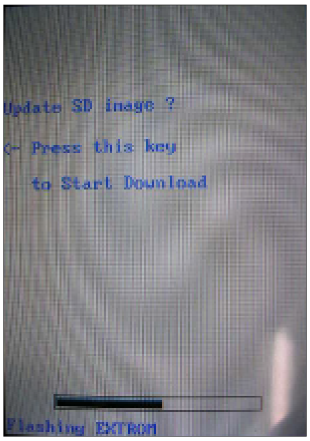




SD Upgrade - 3

X. Re-flash Ext. ROM.

XI. Re-flash 1st phase OS image to flash ROM.



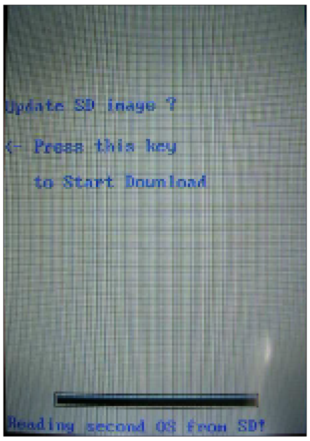


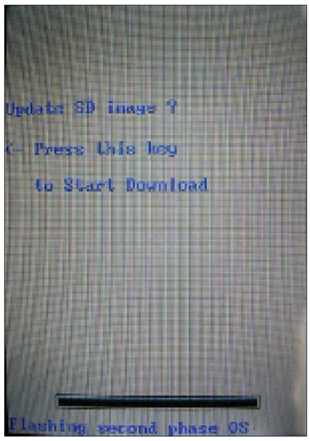
SD Upgrade - 3

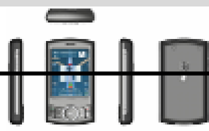
XII. Reading 2ND phase OS image from SD card.

[Note]: This process will takes 6 mins, please don’t power off the device.

XIII. Re-flash 2nd phase OS image; press any key to exit once the process is finished.



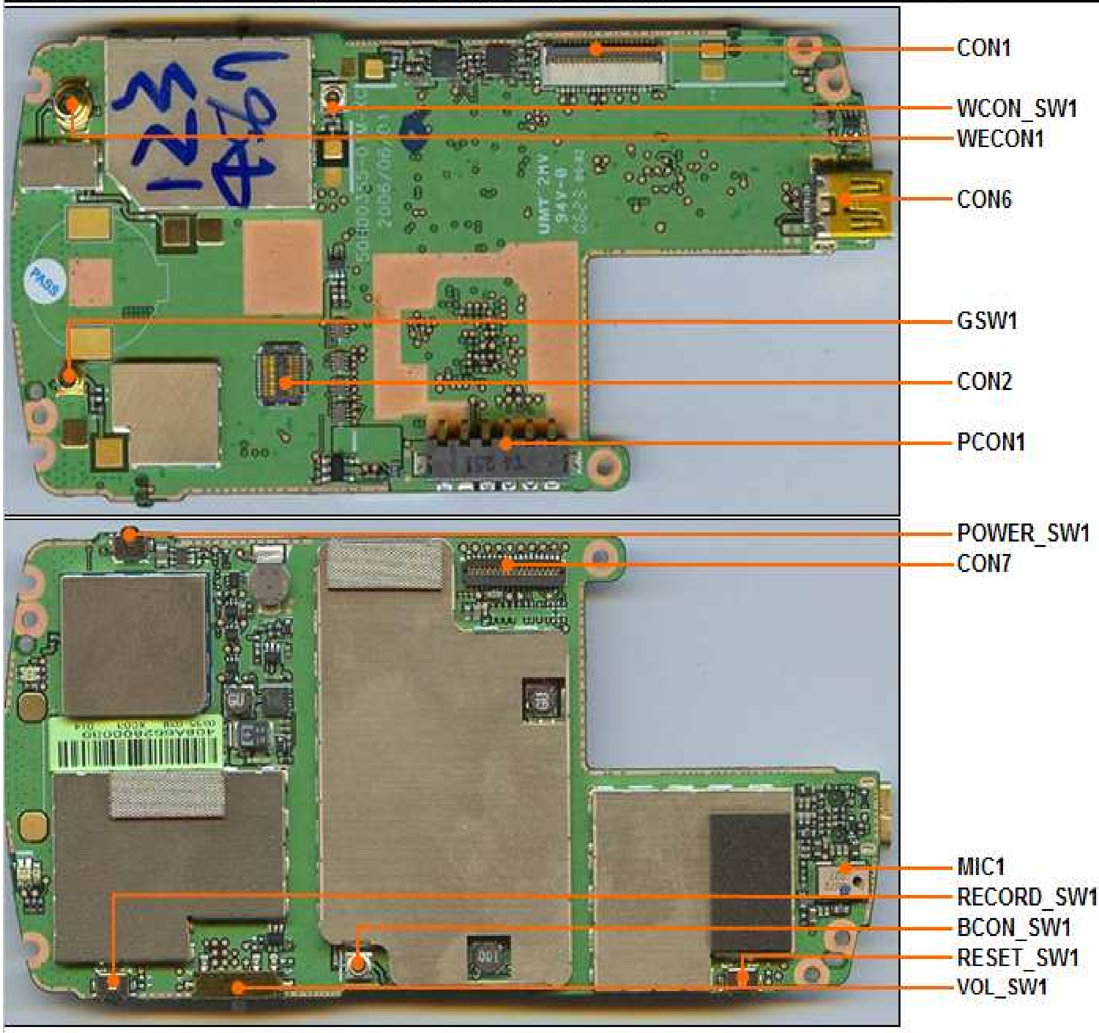




9. Board Level 2.5 Inspection

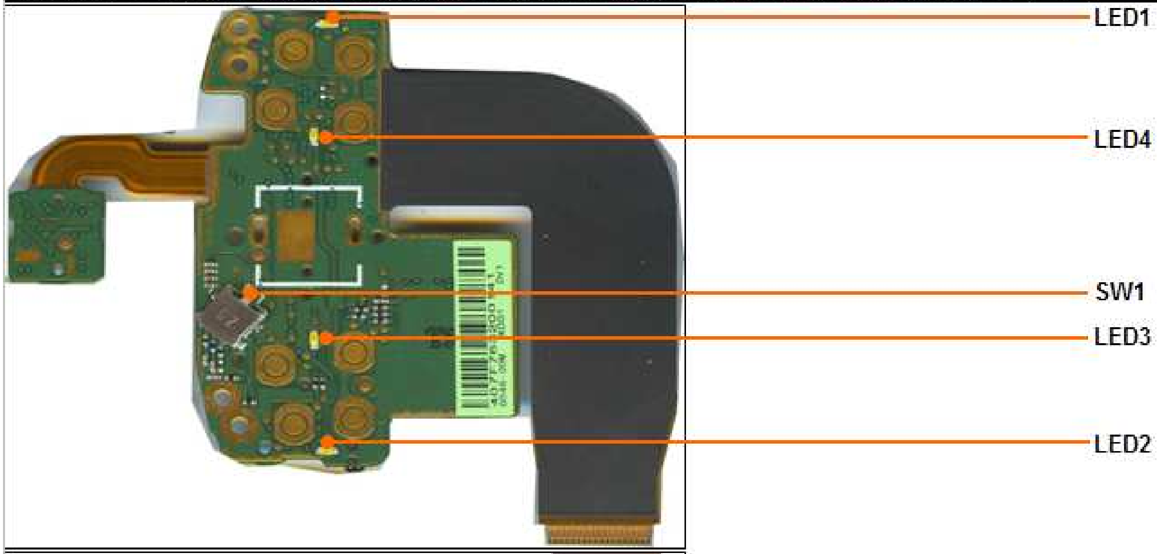
9.1 Main Board

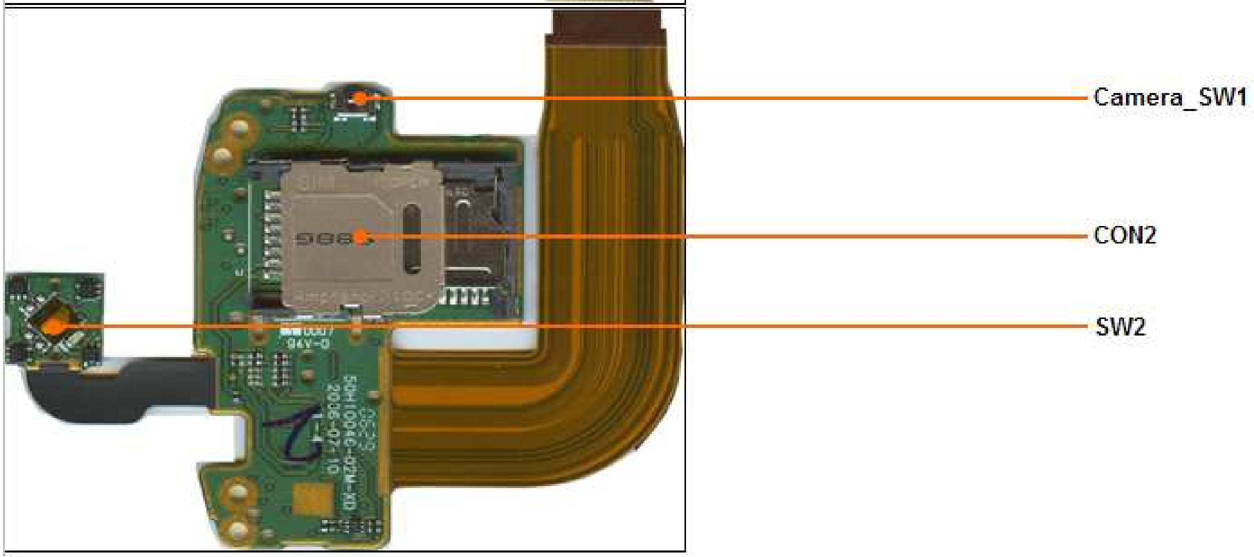
Number	Description	Qty	Location
75H00248-00M	COAXIAL CONNECTOR,RF,WITH SWITCH,SMD,MM8430-2600RA1,MURATA	2	BCON_SW1 WCON_SW1
75H00372-00M	Connector FPC,39P,0.3PITCH,FH23-39S-0.3SHW(05),HIROSE,50mohm,0.3A,30V	1	CON1
75H00420-00M	Connector B to B,Female,22P,0.4Pitch,AXK7L22227,MATSUSHITA,6.8*5.0*0.87mm	1	CON2
75H00454-00M	Connector I/O,Normal,11P,0.4Pitch,302-11101-00,ACT	1	CON6
75H00570-00M	Connector FPC,35Pin,30V,FH26-35S-0.3SHW(05),HIROSE	1	CON7
75H00276-00P	Connector RF,5.8*5.4*3.9,Female,MS-147(06),4pin,HRS	1	GSW1
36H00208-00M	MIC,SP0103NB3-SB-3,EMKAY,Pb-FREE,100/-40degC	1	MIC1
75H00582-00M	Connector Device,6Pin,2.5Pitch,2A,12V,250037MB006G513ZL,SUYIN,Artemis	1	PCON1
36H00230-00M	SWITCH,SOH-213HST,MITSUMI,70/-20degC	3	POWER_SW1 RESET_SW1 RECORD_SW1
36H00160-00M	Slide_Switch,HSS112,HCH	1	VOL_SW1
75H00514-00P	Connector RF,Female,4P,MS-162,HIROSE,3.5*3.1*2.5mm	1	WECON1



9.2 Rigid-Flex Board

Number	Description	Qty	Location
27H00096-00M	LED,2mA,3V,100uA,WHITE,HT-F196BPZ,HARVATEK,80/-30degC,1.6*0.8*0.36mm	4	LED1 LED2 LED3 LED4
36H00230-00M	SWITCH,SOH-213HST,MITSUMI,70/-20degC	1	CAMERA_SW1
36H00350-00M	Switch,PANASONIC,EVQP6EB35,Blizzard	1	SW2
36H00467-00M	Switch,ABC3112P,MATSUSHITA,2-way	1	SW1
75H00586-10M	Connector SIM+MicroSD,22Pin,0.5A,125V,SMSN16-A0-2000,PROCONN,hinge type	1	CON2





10. Generic Troubleshooting

1．Main Unit Does Not Respond to Power Button

(1) Connect the AC adapter, maybe the battery pack is exhaust and wait for few minutes if unit boot.

(2) Check if battery installed well and switch to lock.

(3) Check key lock switch if enable

(4) Check the Power Button if any damage.

(5) Try with another battery pack.

(6) Try if unit can enter boot-loader mode. If so, try to re-flash ROM if can solve the problem.

(7) Check all connections including LCD FPC to Main Board.

(8) Replace Main Board if necessary.

(9) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

2．Touch Panel Does Not Respond to Screen Tap

(1) Check the connection of LCM FPC cable whether is properly connected.

(2) Try to cold boot the unit then tries again.

(3) Try with another LCM.

(4) Try with another Main Board.

(5) Replace LCM if necessary

(6) Replace Main Board if necessary.

(7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

3．Buttons Do Not Respond

(1) Check key lock switch if enable.

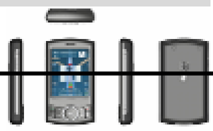
(2) Try to cold boot the unit then tries again.

(3) Dismantle the unit; check the status of switches on the Main Board and the plastic parts of the Button not responding.

(4) Try with another Main Board or Front Bezel.

(5) Replace Main Board or Front Bezel if necessary.

(6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.



4 · Unusual Vertical / Horizontal lines or partial display

(1) Check the connection of LCM FPC whether is properly connected.

(2) Try to cold boot the unit then tries again.

(3) Try to re-flash the ROM code.

(4) Try with another LCM.

(5) Try with another Main Board.

(6) Replace LCM if necessary

(7) Replace Main Board if necessary.

(8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

5 · Back Light Does Not Turn ON/OFF

(1) Check the connection of LCM FPC whether is properly connected.

(2) Try to re-flash the ROM code.

(3) Try with another LCM.

(4) Try with another Main Board.

(5) Replace LCM if necessary

(6) Replace Main Board if necessary.

(7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

6 · CF/SD Card cannot be used

(1) Check whether CF/SD Card is fully inserted to the slot until you hear a click.

(2) Try to re-flash the ROM code.

(3) Try with another CF/SD Card.

(4) Try with another Main Board.

(5) Replace Main Board if necessary.

(6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

7 · PC Connection not possible

(1) If test result is NFF, it is possible caused by user connect cradle to computer before ActiveSync is installed.

(2) Check whether “Connection Settings” in the MS ActiveSync is properly set.

(3) Check whether it connects with other cables or cradle, customer's cable might be damaged.

(4) Check the external appearance of the connector on the unit whether it is physically damaged.

(5) Try to re-flash the ROM code.

(6) Replace Main Board if necessary.

(7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

8 · Battery Pack does not start

(1) Make sure the battery cover is closed properly.

(2) Connect to the AC Adapter and see if it takes charge. Also check AC Adapter condition.

(3) Check whether AC Adapter is functioning properly.

(4) Check whether the condition of Battery Charging status is correct.

(5) Check the appearance of Battery Pack if any abnormal..

(6) Try with another Battery Pack or Replace Battery Pack if necessary

(7) Try with another Main Board or Replace Main Board if necessary.

(8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

9 · Battery discharges quickly even after fully charged

(1) Make sure the Battery Pack takes fully charge with AC Adapter.

(2) Check whether the condition of Battery Charging status is correct.

(3) Dismantle the unit and check the appearance of Battery Pack.

(4) Try with another Battery Pack or Replace Battery Pack if necessary

(5) Try with another Main Board or Replace Main Board if necessary.

(6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

10 · Battery Pack does not recharge

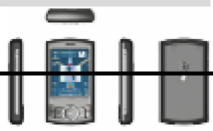
(1) Make sure the Battery Pack takes fully charge with AC Adapter.

(2) Check whether the condition of Battery Charging status is correct. Charge should be done no more than 4 hours.

(3) Dismantle the unit and check the appearance of Battery Pack.

(4) Try with another Battery Pack or Replace Battery Pack if necessary

(5) Try with another Main Board or Replace Main Board if necessary.



(6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

11 · No Sound from Speaker or Distorted sound

(1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.

(2) Make sure it's not MUTED.

(3) Try to re-flash the ROM code.

(4) Clean up the speaker connection side on MB if there is any contamination.

(5) Dismantle and Check whether the Speaker is properly installed (Orientation)

(6) Replace Speaker if necessary.

(7) Replace Main Board if necessary.

(8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

12 · No Recorded Sound or Distorted sound

(1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.

(2) Make sure it's not MUTED.

(3) Try to re-flash the ROM code.

(4) Dismantle and Check whether the Microphone is properly installed.

(5) Replace Microphone if necessary.

(6) Replace Main Board if necessary.

(7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

13 · Wireless connection (WLAN/BT) not possible

(1) Make sure the wireless environment is OK before your checking.

(2) Make sure the wireless connection setting has been properly set.

(3) Make a life connection with Internet or another device.

(4) Try to re-flash the ROM code.

(5) Try with another main board if necessary

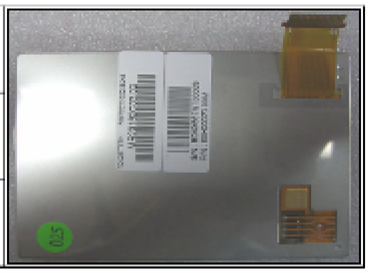
(6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

11. Photo for 80H & 99H Level

Part No	72H01655-00M
Description	EMI Gasket,EMC,PCB
Q'ty	1



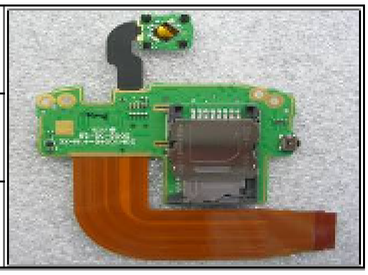
Part No	60H00070-00M
Description	LCD Module,TD028TTEB 1,TOPPOLY
Q'ty	1



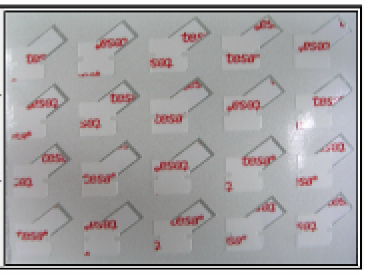
Part No	51H00355-00M
Description	PCBA-MAIN BOARD,W/MegaSIM, W/Wifi,ARTEMIS
Q'ty	1



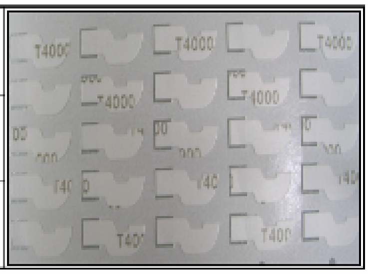
Part No	51H10046-00M
Description	Rigid-Flex Board
Q'ty	1



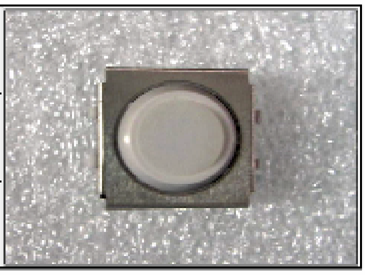
Part No	76H01520-00M
Description	Adhesive-Double Tape,TESA 60975
Q'ty	1



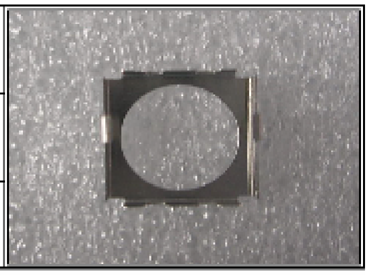
Part No	76H01525-00M
Description	Adhesive-Double Tape,SONY T4000
Q'ty	1



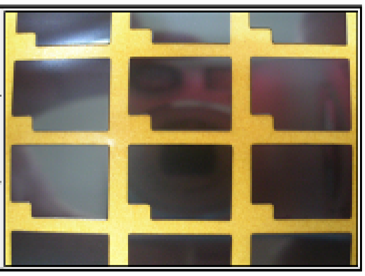
Part No	36H00375-00M
Description	Switch,PANASONIC, EVQWJN011,jogball
Q'ty	1



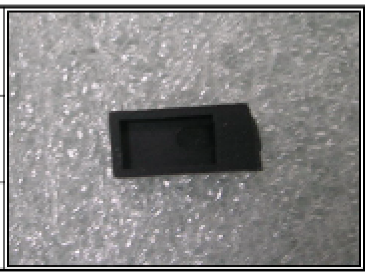
Part No	72H01635-00M
Description	Jog-ball holder
Q'ty	1

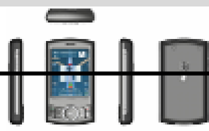


Part No	76H01559-00M
Description	Mylar,PET+TESA 4972,Camera
Q'ty	1

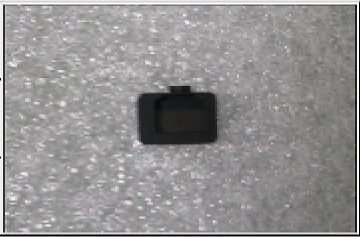


Part No	76H01495-00M
Description	Rubber,Silicon Rubber,Microphone
Q'ty	1

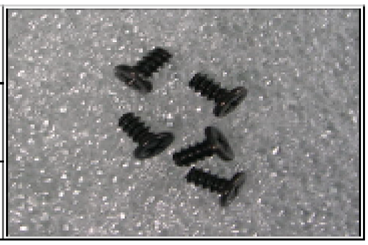




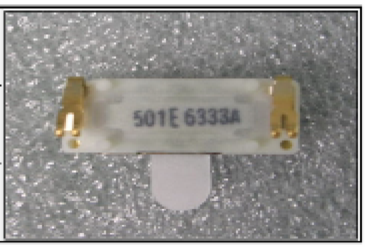
Part No	76H01516-00M
Description	Rubber,Silicon Rubber,Reset
Q'ty	1



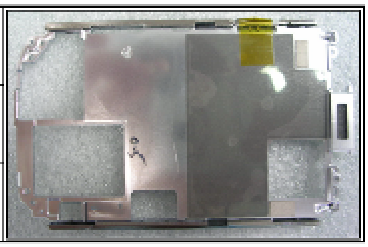
Part No	72H30054-00P
Description	SCREW,PH,FD,T1.6*3
Q'ty	5



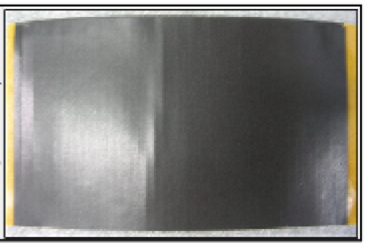
Part No	36H00233-00M
Description	Receiver
Q'ty	1



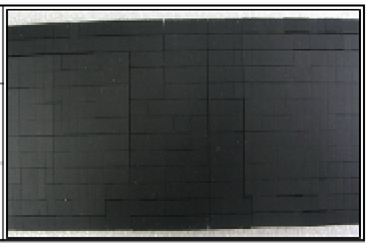
Part No	74H00720-00M
Description	Chassis Pre-Assy
Q'ty	1



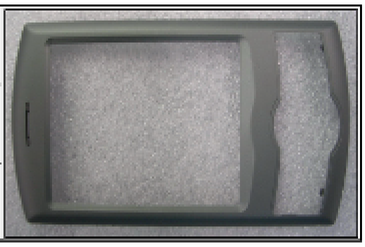
Part No	76H01522-00M
Description	Sponge,SRS48P+TESA 4972,LCD-Chassis
Q'ty	1



Part No	76H01524-00M
Description	Rubber,silicon rubber,FPC,Switch Board
Q'ty	1



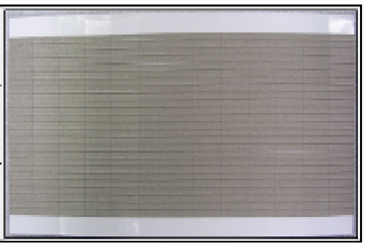
Part No	74H00719-00M
Description	Bezel Pre-Assy
Q'ty	1



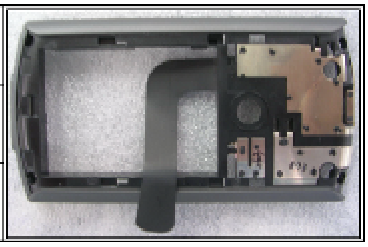
Part No	74H00713-00P
Description	Keypad
Q'ty	1



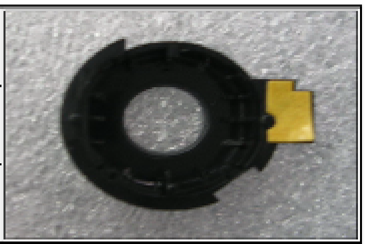
Part No	72H01647-00M
Description	EMI Gasket,LCD
Q'ty	1



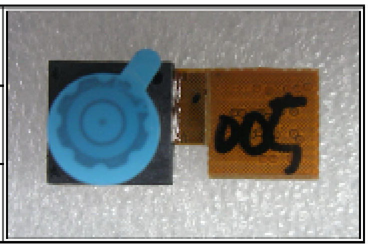
Part No	74H00723-00M
Description	Housing Pre-Assy
Q'ty	1



Part No	74H00715-00M
Description	Jog Ball Pre-Assy,support
Q'ty	1



Part No	54H00187-00P
Description	Module Assy,camera,LITEON
Q'ty	1



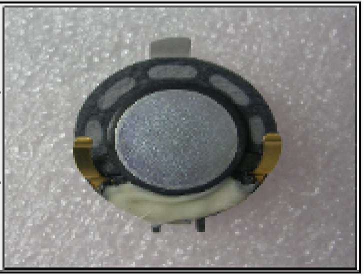
Part No	36H00180-00M
Description	Vibrator
Q'ty	1



Part No	76H01498-00M
Description	Mylar,Mylar+TESA 4972,Battery
Q'ty	1



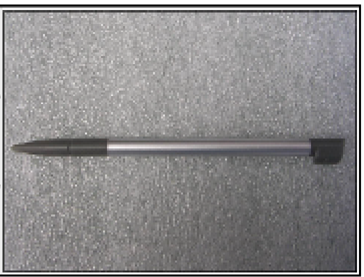
Part No	36H00420-00M
Description	Speaker, Merry
Q'ty	1



Part No	72H00951-00M
Description	Screw,KT-BT1.6_8
Q'ty	4



Part No	74H00712-00M
Description	Stylus
Q'ty	1



Part No	74H00722-00M
Description	Cover Pre-Assy,Battery
Q'ty	1



Part No	35H00062-04M
Description	BATTERY_LI-ION
Q'ty	1

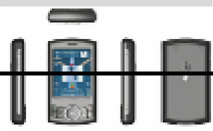


Part No	74H00721-00M
Description	Cover Pre-Assy,Antenna
Q'ty	1



Part No	76H01556-00M
Description	Spacer,PC+T4000,Camera
Q'ty	1





12. RF Antenna Specification

Items	Test Name	TX Level	TCH	1st Downlink Cell Power	Note
1	Camp @ DCS Band	0	512	-75	BCCH=600
2	BS Originate Call	0	512	-75	
E-GSM 900 Receiver Test					
3	Fast Bit Error Rate	5	975	-104	
4	Fast Bit Error Rate	5	42	-104	
5	Fast Bit Error Rate	5	124	-104	
E-GSM 900 Transmitter Test					
6	TX Phase RMS Error	5	975	-104	
7	TX Phase Peak Error	5	975	-104	
8	TX Frequency Error	5	975	-104	
9	TX Phase RMS Error	5	42	-104	
10	TX Phase Peak Error	5	42	-104	
11	TX Frequency Error	5	42	-104	
12	TX Phase RMS Error	5	124	-104	
13	TX Phase Peak Error	5	124	-104	
14	TX Frequency Error	5	124	-104	
15	Check TX Power	5	975	-104	
16	Check TX Power	5	42	-104	
17	Check TX Power	5	124	-104	
DCS 1800 Receiver Test					
1	Fast Bit Error Rate	0	512	-104	
2	Fast Bit Error Rate	0	698	-104	
3	Fast Bit Error Rate	0	885	-104	
DCS 1800 Transmitter Test					
4	TX Phase RMS Error	0	512	-104	
5	TX Phase Peak Error	0	512	-104	
6	TX Frequency Error	0	512	-104	
7	TX Phase RMS Error	0	698	-104	
8	TX Phase Peak Error	0	698	-104	
9	TX Frequency Error	0	698	-104	
10	TX Phase RMS Error	0	885	-104	
11	TX Phase Peak Error	0	885	-104	
12	TX Frequency Error	0	885	-104	
13	Check TX Power	0	512	-104	
14	Check TX Power	0	698	-104	
15	Check TX Power	0	885	-104	
PCS 1900 Receiver Test					
1	Fast Bit Error Rate	0	512	-104	
2	Fast Bit Error Rate	0	661	-104	
3	Fast Bit Error Rate	0	810	-104	

PCS 1900 Transmitter Test					
4	TX Phase RMS Error	0	512	-104	
5	TX Phase Peak Error	0	512	-104	
6	TX Frequency Error	0	512	-104	
7	TX Phase RMS Error	0	661	-104	
8	TX Phase Peak Error	0	661	-104	
9	TX Frequency Error	0	661	-104	
10	TX Phase RMS Error	0	810	-104	
11	TX Phase Peak Error	0	810	-104	
12	TX Frequency Error	0	810	-104	
13	Check TX Power	0	512	-104	
14	Check TX Power	0	661	-104	
15	Check TX Power	0	810	-104	
GSM 850 Receiver Test					
1	Fast Bit Error Rate	5	128	-104	
2	Fast Bit Error Rate	5	189	-104	
3	Fast Bit Error Rate	5	251	-104	
GSM 850 Transmitter Test					
4	TX Phase RMS Error	5	128	-104	
5	TX Phase Peak Error	5	128	-104	
6	TX Frequency Error	5	128	-104	
7	TX Phase RMS Error	5	189	-104	
8	TX Phase Peak Error	5	189	-104	
9	TX Frequency Error	5	189	-104	
10	TX Phase RMS Error	5	251	-104	
11	TX Phase Peak Error	5	251	-104	
12	TX Frequency Error	5	251	-104	
13	Check TX Power	5	128	-104	
14	Check TX Power	5	189	-104	
15	Check TX Power	5	251	-104	